Canadian Aviation Safety Board
Bureau canadien de la sécurité aérienne

Aviation Occurrence Reports

Issue 2

89-00256/

AVIATION OCCURRENCE REPORTS

Cat. No. Tu 2-3/IE — 1987

FOREWORD

AVIATION OCCURRENCE REPORTS

In accordance with the CASB Act, part of the Board's objective is to report publicly on its investigations, on the related findings, and on any recommendations designed to eliminate or reduce safety deficiencies.

Therefore, this publication, AVIATION OCCURRENCE REPORTS, presents reports on CASB investigations, findings, and recommendations as adopted by the Board. The sole intent in providing this information is to advance aviation safety. It is not the object of the Board to determine or apportion any blame or liability in connection with aviation occurrences.

Anyone wanting to employ the AVIATION OCCURRENCE REPORTS for purposes other than advancing aviation safety could find the information incomplete.

This publication is also available in French.

Cette publication est également disponible en français.

A limited number of copies of this publication are retained and are available from:

On peut obtenir des exemplaires de la présente publication en nombre limité auprès du:

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This publication contains reports of aviation occurrences, in Canada, involving Canadian or foreign-registered aircraft.

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EXPLANATORY NOTES

Types of Reports

The CASB currently produces three types of occurrence reports. The most common format is the Summary Report which summarizes the details of the investigation in one or two pages. The next level is the Intermediate Report which is somewhat longer and more detailed. For both these types, the complete public report is reproduced in this publication. More factual information is available on Summary and Intermediate Reports and can be obtained by contacting the CASB and referencing the report number. Finally, a small number of investigations (generally 15 to 20 per year) result in International Civil Aviation Organization (ICAO) format reports. For the latter type of report, only the Synopsis is included in this publication. The full report can be obtained by contacting the CASB and referencing the report number (which is included with the Synopsis). Laboratory reports, if laboratory analysis has been carried out, are available for all three categories of reports and can be obtained in the same manner.

Grouping of Reports

For ease of reference, the reports in this publication are grouped by broad category of aircraft type and by type of operation within each group. The reports are then presented chronologically (by the date of the occurrence) within each subgroup.

For fixed-wing conventional aircraft, the first subgroup is Public Transportation. This includes scheduled, other unit toll, and charter operations. Note that this subgroup is further divided into occurrences involving (i) aircraft of 5 700 kg (12,500 lb) or over and (ii) aircraft under 5 700 kg (12,500 lb). The second subgroup is Commercial Training. This includes licensed flying clubs and commercial specialty training (commercial licence classes 6 and 7, respectively). All other types of fixed-wing aircraft commercial operations are grouped under Other Commercial Operations. The Private aircraft subgroup includes all privately registered aircraft, both personal and corporate. It is further subdivided according to type of landing gear. The final subgroup contains occurrences involving state-owned aircraft.

For the rotary-wing category, there are fewer aircraft and fewer occurrences. Thus, only three subgroups are used, viz. Commercial, Private, and State.

The final category contains occurrence reports for all other types. This includes amateur-built aircraft, ultralights, gliders, balloons, etc.

Contents of Summary Reports and Intermediate Reports

Information on Aircraft:

The first block of each report identifies the type of aircraft involved in the occurrence, the model, the registration, the location, and the date of the occurrence; for commercially operated aircraft, the operator is also identified.

Occurrence Report Number:

The second block commences with the occurrence report number,(any queries to the CASB should carry this reference). The first two numbers identify the year of the occurrence, the first letter identifies the CASB office that conducted the investigation ('A' - Atlantic, 'Q' - Quebec, 'O' - Ontario, 'C' - Central, 'W' - Western, 'P' - Pacific, 'H' - Head Office). The first number after the letter identifies the year of the decade of the occurrence. This block also contains information on the type of investigation (a correspondence investigation is one in which the site of the occurrence was not visited by a CASB investigator), the time of the occurrence, the type of operation, the extent of damage to the aircraft, and the type of licence held by the pilot.

Pilot Hours:

This block indicates the total number of hours the pilot had acquired on all types of aircraft, the total number of hours on type, and the number of hours flown in the last 90 days (in total and on type).

Injuries:

The injuries sustained by the crew, passengers, or others are classified as Fatal, Serious, or Minor/None (See Definitions).

Summary Report Narrative:

The narrative summarizes the history of the flight, pertinent factual information and analysis. The narrative is divided into two parts:

(a) the factual information or a description of what happened, which begins with a description of the history of the flight as close as possible to the occurrence, followed by the pertinent information; and

(b) an analysis of why the occurrence happened.

Findings:

The Board's findings from an investigation are grouped under two subheadings, as follows:

Cause-Related Findings: Any element of the occurrence, found during the investigation which, if removed, would have prevented the occurrence, or, if removed, would have avoided or reduced damage to property and people.

Other Findings: Information, discovered during the investigation of an occurrence, which is not cause related but has the potential to enhance or degrade aviation safety.

Safety Action:

For all aviation occurrence investigations, relevant data are recorded to facilitate statistical analysis and the identification of system-wide safety deficiencies through safety studies. In cases where an individual occurrence investigation leads to specific CASB action, such as an Aviation Safety Recommendation, that action is included in the public report immediately after the Findings.

DEFINITIONS

(Extracted from the Canadian Aviation Safety Board Act/Regulations)

"AVIATION OCCURRENCE"

(a) any accident or incident associated with the operation of aircraft, and

(b) any situation or condition that the Board has reasonable grounds to believe could, if left unattended, induce an accident or incident described in paragraph (a).

"ACCIDENT"

"ACCIDENT" means any aviation occurrence where, at any time during the period commencing when the first person boards an aircraft for the purpose of flight and ending when the last person disembarks from the aircraft after the flight,

(a) a person other than a stowaway, sustains a serious injury or fatal injury, that is not self-inflicted or inflicted by another person or caused by natural causes, as a result of that person

i) being in the aircraft,

ii) coming in direct contact with any part of the aircraft, including any part that may have become detached from the aircraft, or

iii) being directly exposed to the jet blast of the aircraft,

(b) the aircraft sustains damage or structural failure adversely affecting the structural strength, performance or flight characteristics of the aircraft and normally requiring major repair or replacement of any affected component part, other than damage or failure that is limited to

i) the engine, its cowling, or its accessories,

ii) the propellers, wing tips, antennae, tires, brakes or fairings, or

iii) small dents or puncture holes in the aircraft skin, or

(c) the aircraft is missing or is completely inaccessible.

"SERIOUS INJURY"

"SERIOUS INJURY" means an injury that is sustained by a person in an accident and that

(a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was sustained,

(b) results in a fracture of any bone, other than a simple fracture of the nose or of any fingers or toes,

(c) involves lacerations that cause severe haemorrhage or nerve, muscle or tendon damage,

(d) involves injury to any internal organ, or

(e) involves second or third degree burns, or any burns affecting more than five per cent of the body surface.

"INCIDENT"

"INCIDENT" means an aviation occurrence, other than an accident, that affects or could affect the safe operation of an aircraft. Incidents can be reported to the CASB through mandatory or voluntary reporting mechanisms.

According to the CASB regulations a "reportable incident" means any incident involving an aircraft with a maximum certified take-off weight greater than 5 700 kg where

(a) an engine fails,

(b) smoke or fire occurs, other than an engine fire that is contained within the engine and does not result in engine failure or damage to other component parts of the aircraft,

(c) difficulties in controlling the aircraft in flight are encountered due to any aircraft system malfunction, weather phenomena, wake turbulence, operations outside the approved flight envelope, or uncontrolled vibrations,

(d) the aircraft fails to remain within the intended landing or take-off area, lands with one or more landing gear retracted, or drags a wing tip or engine pod,

(e) any crew member is unable to perform his flight duties as a result of incapacitation,

(f) decompression, explosive or otherwise, occurs that necessitates an emergency descent,

(g) a fuel shortage occurs that necessitates a diversion or requires approach and landing priority at the destination of the aircraft,

(h) the aircraft is refuelled with the incorrect type of fuel or contaminated fuel that is undetected prior to departure from the ramp,

(i) a collision or risk of collision with any other aircraft or with any vehicle, terrain or obstacle occurs, including a collision or risk of collision that may be related to air traffic control procedures or equipment failures,

(j) a flight crew member declares an emergency or indicates any degree of emergency that requires priority handling by an air traffic control unit or the standing by of crash, fire fighting or rescue services, or

(k) toxic gases or corrosive materials leak from any cargo aboard the aircraft.

FIXED-WING CONVENTIONAL AIRCRAFT

AIR ONTARIO LIMITED
CONVAIR 580 C-GJRP
LONDON AIRPORT, LONDON, ONTARIO
30 SEPTEMBER 1984

REPORT NUMBER: 84-044073 (Incident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 2300 EDT
OPERATION: Regular Specific Point
DAMAGE: Minor
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	10,000	3000
LAST 90 DAYS	Unknown	Unknown

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	4
PASSENGERS	-	-	43

SUMMARY REPORT:

The aircraft landed from a regularly scheduled passenger flight late at night. As the aircraft entered the ramp area, it made a right turn toward the assigned gate. A marshaller was directing the flight by means of visual signals to the pilot, while referring to yellow guidelines painted on the ramp. There were no ramp personnel watching the wing tips. A similar type company aircraft was parked at the adjacent gate to the left of the taxiing aircraft. As the taxiing aircraft passed the parked aircraft, the two wing tips contacted each other, causing minor damage to both.

The spacing of the lines provided adequate clearance for most combinations of aircraft that might be parked at the gate, but they were too close together for two adjacent Convair 580's. Most ramp personnel were aware of this problem and adjusted the taxi route when marshalling one Convair past another. In this incident, the marshaller was new to the London Airport and was not aware of the inadequate spacing. Because it was dark and there were no other ramp personnel watching wing-tip clearance, neither the pilot nor the marshaller had any warning of the impending collision.

.../2

Subsequent to this occurrence, the guidelines were repositioned to provide adequate clearance.

FINDINGS:

Cause Related:

1. As the pilot taxied the aircraft along a guideline to the gate, the aircraft's wing tip contacted the wing tip of a parked aircraft.

2. The guideline did not provide adequate wing-tip clearance for this type of aircraft.

3. The marshaller was not aware that the guideline did not provide wing-tip clearance for this aircraft.

4. There were no ramp personnel assigned to watch for wing-tip clearance.

Other:

- Nil -

06/08/86

CP AIR
DOUGLAS DC-10 C-GCPE
LESTER B. PEARSON INTERNATIONAL AIRPORT, TORONTO, ONTARIO
4 MARCH 1985

REPORT NUMBER: 85-054023 (Incident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 2209 EST
OPERATION: Scheduled Domestic
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	13,100	2,000
LAST 90 DAYS	Unknown	Unknown

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	15
PASSENGERS	-	-	150

SUMMARY REPORT:

The aircraft, which was on a scheduled flight from Mirabel International Airport to Lester B. Pearson International Airport, carried out a normal landing and taxied to the terminal. On the ramp, ground crew discovered that the inner and outer areas of the right inboard flap were bent back and heavily wrinkled.

A severe winter storm had struck the Toronto area during the day and early evening, dumping a large amount of snow on the airport. To expedite the melting of the ice patches, maintenance crew had chemically treated the runway in use 29 minutes before the occurrence. However, slush patches formed locally, particularly in some areas on the sides of the centre line. On touchdown, the aircraft's right main gear struck a residue of slush that sprayed back like a bow wave onto the extended right inner flap. The impact of the ice and snow mixture was so severe that the flap sustained damage beyond economical repair and had to be replaced.

In anticipation of the landing on a slippery runway, the captain selected 50 degrees of flap instead of the normal 35. This configuration allowed a lower approach speed and provided greater drag, but placed the flaps at greater risk to slush damage.

.../2

26/06/86

FINDINGS:

Cause Related:

1. After a heavy snowfall, the runway was chemically treated to expedite the melting of ice patches.
2. Slush patches were still present on the runway at the time of the occurrence.
3. On touchdown, the aircraft's right main gear sprayed a bow wave of slush back onto the right inner flap.
4. The right inner flap was substantially damaged by the impact of the slush.
5. The selection of 50 degrees of flap instead of the normal 35 made the flaps more vulnerable to slush damage.

Other:

- Nil -

26/06/86

This occurrence was investigated initially by the Aviation Safety Bureau of Transport Canada. The continued investigation and review were conducted jointly by the Aircraft Accident Review Board and the Canadian Aviation Safety Board. The purpose of the investigation is to advance aviation safety not to determine or apportion any blame or liability.

AVIATION OCCURRENCE REPORT

COVAL AIR LTD.
BEECHCRAFT BE18S C-GIFR
PORT HARDY AIRPORT
PORT HARDY, BRITISH COLUMBIA
2 JULY 1984

REPORT NUMBER 84-P40025

SYNOPSIS

The aircraft was on a charter flight from Port Hardy to Vancouver, British Columbia. During the initial climb after take-off, the aircraft rolled suddenly to the left and struck the runway. The aircraft was destroyed by the post-impact fire.

The aircraft was loaded above its maximum allowable take-off weight and its centre of gravity was aft of the rear limit. This led to severe stability and control problems which resulted in a stall from which recovery was not possible.

Ce rapport est également disponible en français.

12 December 1985

3.0 CONCLUSIONS

3.1 Cause-Related Findings:

1. The company load-control procedures were confusing and inadequate.
2. Transport Canada did not uncover the pilot's or company's inadequacies with respect to load control procedures.
3. Although more take-off and landing practice was recommended, Transport Canada issued the pilot with a PPC authorizing him to fly as pilot-in-command on a commercial service with passengers.
4. Company operational control was bypassed by the pilot as company president.
5. As the flight was one hour behind schedule, there was pressure on the pilot to meet the schedule for the remainder of the day.
6. The company operational control procedures as stated in the company operations manual were not followed.
7. The pilot had not previously flown this aircaft type at or near the maximum allowable take-off weight and c.g. limits.
8. The aircraft was loaded outside the maximum allowable take-off weight and c.g. limits leading to a severe stability and control problem which resulted in a stall from which recovery was not possible.

3.2 Other Findings:

1. Transport Canada CFR personnel are not staffed nor extensively trained to rescue occupants from burning aircraft.
2. The pilot was certified for the flight in accordance with regulations.
3. The aircraft was certified, equipped, and maintained in accordance with regulations and approved procedures.
4. There was no evidence of any airframe failure or system malfunction prior to or during the flight.

4.0 RECOMMENDATIONS

4.1 Action Taken

No urgent safety action or interim recommendations were initiated by the Canadian Aviation Safety Board (CASB) as a consequence of this accident.

4.2 Further Actions Required

4.2.1 Verification of Load Control Documents

The CASB questions the effectiveness of the procedures of the Department of Transport for ensuring that company operations manuals contain complete and accurate load control documents for weight and balance computations, prior to the issuance of an Operating Certificate to air carriers using small aeroplanes in air transport operations. This investigation determined that the load control documents for the Beech 18 aircraft provided by Coval Air for inclusion in their company operations manual contained inaccurate and incomplete data. The maximum gross weight for the aircraft was incorrectly stated. Furthermore, because of missing data, it was impossible to calculate the aircraft's centre of gravity. Despite the inaccurate and incomplete documentation, the Department of Transport issued an Operating Certificate to Coval Air. Therefore, the CASB recommends that:

> The Department of Transport institute more rigorous procedures for verifying the completeness and accuracy of load control documents for weight and balance computations, which are to be included in company operations manuals of air carriers using small aeroplanes in air transport operations, before the issuance of an Operating Certificate. These procedures should emphasize the applicant's responsibility to provide accurate aircraft weight limitations as well as easily understood and complete load control documents for verification by the inspecting officer.

CASB 85-25

4.2.2 Pilot Licensing Procedures and Application of Standards

Although the Department of Transport licensing procedures and standards are specific, the CASB questions the manner in which these procedures and standards were applied in the case of the pilot in this accident. A multi-engine flight test was successfully completed with a Department of Transport designated check pilot who recommended that much more training was required by the accident pilot, before attempting a Beech 18 Pilot Proficiency Check (PPC). Despite this recommendation, the accident pilot flew only one hour after his multi-engine flight test, before attempting his PPC. Although the accident pilot was rated by a Department of Transport Small Carrier Inspector as having successfully met the requirements of a PPC, it was recommended that the accident pilot acquire more take-off and landing experience on the Beech 18 aircraft before commencing passenger operations. At no time during the PPC licensing process was the accident pilot required to demonstrate his ability to prepare a weight and balance computation for his aircraft. In consideration of the above, the CASB recommends that:

> The Department of Transport give explicit direction to its inspectors on the importance of a complete review of a pilot candidate's documentation prior to a flight test or proficiency check and of the strict application of licensing standards. The documentation review should include confirmation of the candidate's ability to complete a weight and balance computation for the applicable aircraft.
>
> CASB 85-26

4.2.3 Operational Control over Management Personnel Engaged in Flight Operations

The CASB is concerned about the limited control that can be exercised by operations managers and chief pilots over senior management personnel who act as pilot-in-command during company flight operations. As demonstrated by this accident, the authority of operations managers and chief pilots over flight operations can be diminished when the pilot-in-command is the employer. The normal checks and balances provided by supervisory flight personnel over flight operations personnel can be lost in such situations in that there can be a fundamental conflict of interests. Company officers performing as pilots-in-command may be under compelling pressures beyond the motivation of safe mission accomplishment.

It is recognized that it would be difficult to restrict the license privileges of a pilot solely on the basis of the license holder's position within the company. Therefore, the Board is not prepared to issue a Recommendation at this time. Nevertheless, the issue of effective control over senior management personnel who act as pilot-in-command will be monitored by the Board in its future investigations.

TETU LODGE
CESSNA 180 C-FNAT
WINNIPEG RIVER, ONTARIO
19 JULY 1984

REPORT NUMBER: 84-C40052 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1130 CDT
OPERATION: Charter
DAMAGE: None
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,900	215
LAST 90 DAYS	215	215

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1
OTHER	1	-	-

SUMMARY REPORT:

The pilot of the float-equipped aircraft and one passenger departed Tetu Lodge for Margot Lake. Rather than proceeding directly to the destination, the pilot had been instructed to proceed via the Winnipeg River to check on a resupply barge.

A short time after take-off, the pilot spotted the barge and thinking that something was amiss, decided to make a low pass near the barge in an attempt to determine what, if anything, was wrong. During the manoeuvre, the pilot reported that he momentarily lost control of the aircraft because of turbulence, and a part of the aircraft struck the barge operator. The pilot circled and landed, and with the help of his passenger, loaded the injured man into the aircraft and flew him to Kenora. The barge operator died a few days later as a result of the injuries.

The investigation revealed that as the aircraft approached the barge, the operator was observed standing on top of the cargo taking pictures of the aircraft. The camera was retrieved and the film was developed. There was only one picture of a Cessna 180 at a distance of about 100 feet flying at a very low altitude directly toward the camera. The aircraft was identified as the aircraft that struck the barge operator.

The pilot's intentions were not determined; however, his approach path was unnecessarily low and close to the barge, reducing the safety margin.

FINDINGS:

Cause Related:

1. The operator of the barge was struck by the low-flying aircraft when the pilot manoeuvred his aircraft too close to the barge.

Other:

- Nil -

28/05/86

WALSTEN AIR SERVICE
CESSNA U206E C-GFZQ
KENORA, ONTARIO
19 JULY 1984

REPORT NUMBER: 84-C40053 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1110 CDT
OPERATION: Charter
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	970	101
LAST 90 DAYS	175	64

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	4

SUMMARY REPORT:

The float-equipped aircraft was struck by a pleasure boat shortly after touchdown resulting in extensive damage to the right rear section of the aircraft.

On short final, the pilot noticed the boat on a collision course off to his right. Aware that the aircraft was not seen by the boat operator, a decision was made to land rather than overshoot, and then step turn the aircraft to the left so that the boat might miss the aircraft and, also, minimize the possibility of the propeller contacting the boat. The pilot was reluctant to overshoot because of rising terrain and a populated area directly ahead.

Even though the operator is licensed to use the area as a water aerodrome, boaters along with wind surfers, water skiers and swimmers were allowed to use the same area with no special restrictions with respect to aircraft movements.

.../2

19/09/85

FINDINGS:

Cause Related:

1. The aircraft was not seen by the boat operator.
2. A decision was made to land rather than overshoot.
3. Procedures did not exist for coordinating the activities of the various users of the waterway.

Other:

-- Nil --

19/09/85

BRADLEY AIR SERVICE
DHC-6 TWIN OTTER C-GNDO
BACK BAY, NORTHWEST TERRITORIES
12 AUGUST 1984

REPORT NUMBER: 84-C40068 (Accident)
LOCAL TIME: 1725 CDT
OPERATION: Charter
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	7039	4809
LAST 90 DAYS	186	186

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	8

SUMMARY REPORT:

On arrival over his destination the pilot circled the landing area to determine wind conditions and elected to land on the runway. There was a strong, gusting cross-wind from the left. During the landing roll, the pilot transferred his hand from the control wheel to the nosewheel steering tiller, and was unable to counteract the effects of a sudden gust of wind with left aileron before the right wing tip struck the runway. The wings were levelled but directional control was lost; the aircraft swung left and ran off the runway.

FINDINGS:

Cause Related

1. There was a strong, gusting cross-wind from the left.

2. Directional control was lost when the pilot transferred his hand from the control wheel to the nosewheel steering tiller.

Other

- Nil -

19/09/85

AVIATION B.E.N. LTEE
DE HAVILLAND DHC 2 BEAVER C-FEGE
WABUSH LAKE, LABRADOR NEWFOUNDLAND
1 SEPTEMBER 1984

REPORT NUMBER: 84-A40020 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1325 NDT
OPERATION: Charter
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	13,200	Unknown
LAST 90 DAYS	250	100

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	1	2	-

SUMMARY REPORT:

The float-equipped Beaver aircraft had been chartered to fly three passengers to northern Quebec. The pilot had planned to refuel at Fermont, Quebec; however, en route he was informed that fuel was not available there, so he diverted to Wabush Lake. On arrival over Wabush Lake, the pilot made two passes over the landing area before commencing the final approach. While on final approach at about 60 feet above the lake, the aircraft struck high tension hydroelectric wires and crashed into the lake.

This was the pilot's first flight to the Wabush Lake Aerodrome. Two parallel hydroelectric lines crossed over a small inlet on the lake. Towers painted red and white were located on each side of the approach path selected by the pilot. The power lines were not marked with warning markers in accordance with Transport Canada Standards. The light conditions at the time of the approach made the wires invisible against the dark water background; however, the pilot should have been able to see the towers.

The aircraft was fitted with very high frequency (VHF) and high frequency (HF) transceivers. The Wabush Airport control zone radius extends to five nautical miles and Wabush Radio uses a mandatory frequency of 122.3 megahertz (MHz) to a radius of 20 nautical miles. The aircraft's flight path would have brought the aircraft to within one-half mile of the end of the Wabush Airport runway. From the analysis of the Wabush Radio tape recording, there are no indications that the pilot attempted to contact Wabush Radio prior to or during the approach.

.../2

On the lake, there is a licensed water-landing area which is located approximately two miles north of the Wabush Airport. The English section of the Water Aerodrome Supplement (12 April 1984) did not include a diagram of Wabush Lake. In the aerodrome comments section, there was a warning that stated "P-line 1850 ASL 0.5 NM S"; however, it did not indicate the reference point for the warning. The English section of the supplement covers aerodromes across Canada, whereas the French section covers only the province of Quebec. The pilot had no ability in speaking or reading English. Without a diagram he may not have been aware that the power lines crossed his flight path. Air Traffic services were not available in French, nor were they required to be by regulation.

The passenger baggage was placed on the floor in the rear of the cabin but was not secured. When the aircraft struck the water, the baggage was thrown throughout the aircraft cabin, and all four seat floor attachments failed. These factors contributed to the severity of the injuries to the occupants.

The pilot's total hours on type could not be established. However, as he had flown the aircraft for several years, it can be assumed that he was familiar with the type.

FINDINGS:

Cause Related:

1. The pilot was unfamiliar with the landing area.
2. Light conditions made the power lines invisible against the dark water background.
3. The power lines were not fitted with aircraft warning markers in accordance with Transport Canada standards.
4. The Water Aerodrome Supplement did not contain a diagram of Wabush Lake Aerodrome indicating the location of the power lines.
5. Passenger baggage was not secured for flight.
6. The seat floor attachments failed at impact.

Other:

1. The French section of the Water Aerodrome Supplement did not describe aerodromes outside the province of Quebec.
2. The pilot did not speak or read English and was landing without the benefit of landing advisory information from Wabush Radio.
3. Air Traffic services were not available in French, nor were they required to be by regulation.

BEARSKIN AIR SERVICE LTD.
B-99 C-GDSL
SIOUX LOOKOUT, ONTARIO
4 SEPTEMBER 1984

REPORT NUMBER: 84-C40078 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1925 CDT
OPERATION: Non-regular Specific Point
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	8,000	3,500
LAST 90 DAYS	267	267

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	3

SUMMARY REPORT:

The aircraft was on a scheduled flight from Thunder Bay to Sioux Lookout, Ontario. The first officer was occupying the right seat and was at the controls. The captain stated that he selected flaps and gear down, then confirmed that the gear was down during the approach. When power was reduced for the landing, the landing gear warning horn sounded. The aircraft landed on the belly cargo pod and slid to a stop. After the aircraft had stopped, it was observed that the landing gear circuit-breaker had "popped".

The aircraft was removed and put on jacks to test the landing gear. The gear was not damaged and did not require any repair work. When the circuit-breaker was pushed in and the gear was cycled, the landing gear and the gear warning horn functioned normally. Repeated cycling did not cause the circuit-breaker to pop.

Both the captain and first officer had duty periods of 19.5 and 23.0 hours respectively on the previous day, with a seven-hour rest period before duty time commenced on 4 September. It is possible that crew fatigue was a factor in the wheels-up landing.

FINDINGS:

Cause Related:

1. The aircraft was landed with the gear in the up position.

Other:

1. The crew was fatigued.

02/04/86

The Canadian Aviation Safety Board investigated this occurrence for the purpose of advancing aviation safety. It is not the object of the Board to determine or apportion any blame or liability.

AIRCRAFT OCCURRENCE REPORT

NAHANNI AIR SERVICES LTD.
DE HAVILLAND OF CANADA
DHC-6-100 C-FPPL
FORT FRANKLIN, NORTHWEST TERRITORIES
9 OCTOBER 1984

REPORT NUMBER 84-H40004

SYNOPSIS

The aircraft was flying between Fort Norman and Fort Franklin, Northwest Territories on a specific point service carrying passengers and freight. While on approach in visibility reduced in fog, the aircraft struck a telecommunications tower. A portion of the right wing separated, and the aircraft slowly rolled over before striking the ground. All seven occupants sustained fatal injuries.

Ce rapport est disponible en français.

10 October 1985

3.0 CONCLUSIONS

3.1 Cause-Related Findings:

1. The weather at Fort Franklin was unsuitable for the flight.
2. The flight was continued into weather below that which is required for VFR flight.
3. An approach to the aerodrome was attempted using the radar altimeter to provide terrain clearance.
4. The pilot descended to an altitude below the height of the telecommunications tower.
5. A lack of official weather observations and of communications facilities at Fort Franklin deprived the pilot of reliable local weather information on which to base his decisions.
6. There exists in the more remote areas of Canada a different attitude with regard to the assessment of risk in flight operations; it is likely that this attitude influenced the decisions and actions of the pilot.
7. The operational decisions of the pilot may have been influenced by the effects of stress and a greater than usual personal need to complete the flight.
8. Company management may have had a better appreciation of the risk potential associated with the recent events in the pilot's life, if they had more awareness of the effects of stress on performance.

3.2 Other Findings:

1. The regulatory authority was satisfied the carrier had a management structure that would ensure safe operations before issuing an operating certificate; but total delegation of flight authorization to the pilot eliminated the involvement of flight operations management in determining whether it was safe to conduct the flight.
2. As there are no definite criteria for the depiction of obstructions on aerodrome diagrams contained in the Canada Flight Supplement, examination of aerodrome diagrams does not provide adequate guidance regarding the presence of obstructions in proximity to aerodromes.
3. A lack of standards and quality control has resulted in inconsistencies in the depiction of Transport Canada approved company instrument approach procedures.

4. The pilot was certified and qualified for the flight in accordance with existing regulations.

5. The aircraft was certified, equipped, and maintained in accordance with existing regulations and approved procedures.

6. The weight and centre of gravity were within the prescribed limits.

7. There was no known in-flight airframe failure or systems malfunction prior to or during the collision with the telecommunications tower.

RECOMMENDATIONS

Actions Taken

As a consequence of this accident and the subsequent investigation, two Aviation Safety Advisories were forwarded to the Canadian Air Transportation Administration (CATA) of the Department of Transport by the Canadian Aviation Safety Board (CASB) concerning:

a) the advisability of improving the format and presentation of information in the Canada Flight Supplement (CFS); and
b) the approval process for company instrument approach procedures.

The CASB notes the actions already taken by CATA with respect to the CFS to:

a) publish bearing and distance information on all navaids more than 0.2 nm from the aerodrome in the NAV Section;
b) amend the Fort Franklin aerodrome diagram to include the 200-foot obstruction; and
c) include aerodrome elevation on aerodrome diagrams.

Further Actions Required

85-07 Operational Control - The CASB questions the effectiveness of current regulatory requirements for operational control over the flight crews by air carriers using small aeroplanes in air transport operations. In particular, current practices for flight authorization and pilot dispatch are not conducive to effective operational control by management. Therefore the CASB recommends that:

> The Department of Transport amend Air Navigation Order Series VII Number 3 to include:
>
> a) a definition of flight authorization;
> b) the minimum administrative requirements for the operations manager, dispatcher or chief pilot to effect flight authorization;
> c) those conditions where flight authorization and dispatch can be delegated by the operations manager, dispatcher or chief pilot to the pilot-in-command;
> d) minimum flight watch procedures for day Visual Flight Rule (VFR) flights;
> e) the minimum qualifications required of an operations manager; and
> f) the minimum qualifications required of a dispatcher.

85-08 Human Factors - The CASB is concerned that the impact of human factors on pilot performance is generally not well understood, either by flight crews or flight management. Consequently, the CASB recommends that:

> The Department of Transport develop a training program in Human Factors for flight operations supervisors. This program should be made available to Regional Aviation Safety Officers of the Department of Transport for use in company safety officer courses and should consider among other things:
>
> a) the effects of personal stress upon individual judgement and performance; and
> b) recognition of the symptoms of personal stress by pilots and management.

85-09 Canada Flight Supplement - In order to facilitate safe flight in the vicinity of an airport under VFR conditions, the CASB recommends that:

> The Department of Transport publish criteria for and standardize the presentation of information for aerodromes in the Canada Flight Supplement.

85-10 Company Instrument Approach Charts - While recognizing the operational requirement for instrument approach procedures for companies operating out of remote aerodromes, the CASB believes that more rigorous standards for information presentation and procedure validation would reduce the risks in using these restricted procedures. Therefore, the CASB recommends that:

> The Department of Transport amend Division 8 of Inspection Instructions TP 584E to ensure that Department of Transport approved company instrument approach charts:
>
> a) adhere to the format established for instrument approach charts published in Canada Air Pilot;
> b) indicate a fixed period of validity; and
> c) are periodically validated through Department of Transport flight checks.

85-11 Weather and Communications Facilities - The CASB acknowledges that limitations in resource availability will perpetuate conditions of austere airport facilities throughout much of Canada's hinterland. Nevertheless, the CASB recommends that:

> The Department of Transport review conditions at those Arctic C (Community) aerodromes included for development under the 1974 Arctic Air Facilities Policy, but for which the upgrade was not completed, with a view to meeting the minimum essential requirements for air-ground-air communications and the recording and the passing of meteorological observations.

SEYMORE AIR LTD
CESSNA 414 C-GRLD
CASTLEGAR AIRPORT, BRITISH COLUMBIA
14 DECEMBER 1984

REPORT NUMBER: 84-P44016 (Incident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1630 PST
OPERATION: Charter
DAMAGE: Minor
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	5,000	500
LAST 90 DAYS	200	200

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	4

SUMMARY REPORT:

During the flight, rime icing was encountered. On approach, the aircraft's pneumatic boots were used to remove the accumulated ice from the wings. As the airspeed was reduced below 135 knots for gear extension, the right wing dropped, and a partial spiral dive resulted. Approximately 1,000 feet of altitude was lost before recovery was made. Minor aircraft damage was sustained during the recovery.

Although an attempt was made to remove the ice from the wings using the de-icing boots, large amounts remained on the right wing. The right wing stalled at a higher than normal airspeed because its airfoil shape was deformed by the presence of the ice.

Cause Related:

1. Ice remained on the right wing following a de-icing attempt.

2. The right wing stalled resulting in a loss of aircraft control.

3. The aircraft sustained minor damage during the recovery from the spiral dive.

Other:

-- Nil --

21/11/85

LONDON FLYING CLUB
PIPER PA28 C-GGIC
LONDON AIRPORT, ONTARIO
4 JULY 1984

REPORT NUMBER: 84-040034 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1230 EDT
OPERATION: Flying Club Training
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	750	300
LAST 90 DAYS	200	200

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	-

SUMMARY REPORT:

The student pilot, who was accompanied by an instructor, was performing his first take-off in a powered aircraft. During the climb-out, at about 200 feet above ground level, the engine power was momentarily interrupted; then the engine (Lycoming O-320-E3D) stopped. The instructor took control and, to avoid a built-up area in the departure path, turned 90 degrees to the right for a landing. The aircraft touched down heavily at or near the stall speed on soft ground, and the landing gear was torn off. The right wing, which was bent upwards on impact, blocked the door and trapped the crew in the aircraft.

The description of the loss of engine power was consistent with an interruption of the fuel supply. However, an examination of the engine and fuel system did not reveal any cause for the engine stoppage.

By turning to the right, the landing was made with a tail wind component. A left turn to a suitable area would have resulted in a head wind component and a lower groundspeed on touchdown. A high sink rate may have been induced by the pilot in his attempt to reduce the touchdown speed.

.../2

16/10/85

FINDINGS:

Cause Related:

1. The engine stopped for undetermined reasons.

2. The downwind landing pattern resulted in a high aircraft ground speed.

3. A heavy landing was made on soft ground.

Other:

- Nil -

CHILLIWACK FLYING CLUB
CESSNA 172M C-GCQQ
HEDLEY, BRITISH COLUMBIA
07 JULY 1984

REPORT NUMBER: 84-P40026 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1310 PST
OPERATION: Flying Club Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	211	211
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

The pilot decided to land on a narrow roadway to inspect some property. He rejected his first attempt because the aircraft veered off the roadway to the right after touchdown. The pilot applied power and managed to get the aircraft airborne. While in the air, it was noticed that weeds were lodged in the tail plane.

On the second approach, with full flaps selected, the pilot descended toward the exact same stretch of road and touched down at between 60 and 65 knots. Suddenly, the aircraft veered to the left side, down an embankment and continued across a field for about 160 feet. After striking two steel posts, which caused considerable damage to the propeller, lower engine cowl, fuselage and wing strut, the aircraft gradually turned to the right and travelled about 400 feet before coming to rest.

The investigation revealed that the roadway selected was 1,700 feet long and 10 feet wide. As the span of the landing gear on landing was 8 feet 4 inches, there was only a 10-inch clearance on either side of the wheels to the edge of the roadway. There was a depression bordering the left side of the initial 550 feet of the chosen landing area, and the winds were reported gusty and variable at the time.

FINDINGS:

Cause Related:

1. The pilot selected an unsuitable area for landing.

2. Directional control was lost after touchdown.

3. The aircraft veered off the roadway to the left and struck two steel posts in the ground 160 feet from the road.

Other:

19/09/85

- Nil -

LEWMAR AIR TORONTO LIMITED
CESSNA 150M, C-GGUK
MARKHAM AIRPORT, ONTARIO
18 JULY 1984

REPORT NUMBER: 84-040041 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1945 EDT
OPERATION: Specialty Flying Training
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	410	205
LAST 90 DAYS	130	90

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	-

SUMMARY REPORT:

A student, who was undergoing dual instruction, was carrying out an approach in a 12 kt, 70 degree right cross-wind. The approach was flown with 20 degrees of flap at an airspeed of 60 mph. As the aircraft crossed the threshold of the runway, it began to veer to the left. When full power was applied for an overshoot, the aircraft, which had not touched down at any time, swung sharply to the left and headed toward an aircraft which was parked 112 feet from the runway edge. The instructor took control and attempted to overfly the parked aircraft. The indicated airspeed had dropped to about 40 mph and was too low to permit the climb required to avoid a collision.

Directional control was not maintained as the aircraft was operated in a cross-wind condition that exceeded the maximum recommended cross-wind limitations for landing light aircraft, as suggested by the Transport Canada Aeronautical Information Publication (AIP). In addition, when the instructor took control, the airspeed was too low to manoeuvre the aircraft and avoid the parked aircraft.

19/09/85

FINDINGS:

Cause Related:

1. The aircraft was operated in a cross-wind condition that exceeded the maximum recommended cross-wind limitations for landing light aircraft, as suggested by the Transport Canada AIP.
2. The student pilot was not able to maintain directional control of the aircraft.
3. The instructor did not take control in sufficient time to manoeuvre the aircraft and avoid the parked aircraft.

Other:

- Nil -

19/09/85

AERO ACADEMY
CESSNA 152 C-GBTQ
PORT BRUCE, ONTARIO
21 JULY 1984

REPORT NUMBER: 84-040044 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1544 EDT
OPERATION: Specialty Flying Training
DAMAGE: Substantial
PILOT LICENCE: Student

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	57	57
LAST 90 DAYS	9	9

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

At 500 feet above ground level, the student pilot increased the power for a go-around following a practice forced landing approach. The engine (Lycoming 0-235-L2C) did not accelerate to full power, and it began to run rough. The carburettor heat, which had been in the hot position during the go-around, was moved to the cold setting, but the engine continued to run rough. A decision was made not to remain airborne with the power that was available. The throttle was closed, and the aircraft landed straight ahead on a tobacco field. The aircraft landed hard and bounced twice. On the final touchdown, the nose gear collapsed, and the aircraft came to a stop on its nose and left wing tip.

The student, who was concerned that the engine was going to stop, wanted to land as quickly as possible while there was still some power available. The fact that the aircraft might have been able to remain airborne with only partial power was not considered. This type of situation had not been discussed with the student during the flying training.

The student, who had been experiencing some difficulty with practice forced landing approaches, was afraid that the tobacco field was too short because of power lines located at the far end of the field. Flaps were not used for the approach, and as the touchdown speed and rate of descent were high, the aircraft bounced on landing. The student did not consider using any of the more suitable landing areas that were available in the immediate vicinity of the tobacco field.

.../2

03/10/85

An examination revealed that the engine was mechanically serviceable and capable of operating. The two front lower spark plugs were lead fouled, and when the engine was ground run, it ran rough. The fouled plugs accounted for the rough running and were responsible for a large magneto drop. However, it was determined during the ground run that the engine could have developed enough power to continue the flight.

FINDINGS:

Cause Related:

1. The engine would not accelerate to full power.

2. Two front lower spark plugs were lead fouled.

3. The touchdown speed and rate of descent were high on landing.

4. The pilot did not consider other suitable landing areas.

Other:

-- Nil --

03/10/85

BRAMPTON FLYING CLUB
CESSNA 152 C-GBJQ
BRAMPTON AIRPORT, ONTARIO
07 AUGUST 1984

REPORT NUMBER: 84-040052 (Accident)
LOCAL TIME: 0935 EDT
OPERATION: Flying Club Training
DAMAGE: Substantial
PILOT LICENCE: Student Pilot

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	21	21
LAST 90 DAYS	21	21

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The student pilot, who was on his second solo flight, was practising take-offs and landings. On the second take-off, full power was applied, and as the aircraft became airborne, the right wing dropped and the aircraft turned right. The pilot then attempted to recover using aileron. The aircraft settled on to the runway and continued into a ploughed area beside the runway. The nosewheel collapsed, and the aircraft came to rest on the propeller and right wing tip.

The investigation indicates the aircraft became airborne prematurely and stalled due to the low airspeed. Control inputs were not effective in recovering from the stall nor in preventing the aircraft from departing the runway.

FINDINGS:

Cause Related

1. The aircraft became airborne prematurely and stalled.

2. In the recovery attempt, the pilot was unable to maintain directional control.

3. The aircraft was not aligned with the runway when it touched down.

4. The aircraft left the runway and continued into a ploughed field.

Other:

-Nil-

18/03/86

SKYCRAFT AIR TRANSPORT INC.
BEECH E18S CF-FLC
OSHAWA AIRPORT, ONTARIO
20 AUGUST 1984

REPORT NUMBER: 84-040058 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1445 EDT
OPERATION: Commercial Non-Revenue
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES CAPTAIN/CO-PILOT	ON TYPE CAPTAIN/CO-PILOT
TOTAL	19,568 / 3,450	2,535 / 2
LAST 90 DAYS	135 / 230	17 / 2

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	-

SUMMARY REPORT:

During a training flight, the crew had completed several circuits and was attempting to land the aircraft with one engine operating at reduced power to simulate a single engine landing. The aircraft landed smoothly but became airborne again. As the aircraft settled back on the runway, the landing gear retracted. Both wing flaps were bent, and the air intake scoops on the cowlings were ground off. The pitot tubes were damaged, and the propeller blades were bent.

When the aircraft was examined, the landing gear selector was in the up position. Both pilots were certain the gear had been selected down on the final approach. The landing gear can be lowered by placing the selector in the down position, even when the selector is not placed into the detent. When the selector is in the detent a safety lock engages to prevent the handle from moving. When the selector is not in the detent, it is possible to move it and allow the gear to retract when the oleos are fully extended and the anti-retract switch is disengaged. The landing gear position indicator lights may give a safe gear down indication when the landing gear selector is down but not in the detent position.

03/10/85

FINDINGS:

Cause Related:

1. As the pilot had not pushed the landing gear selector into the detent when he selected the landing gear down, the lever moved and the landing gear retracted.

2. The landing gear position indicator lights may give a safe gear down indication when the landing gear selector is down but not in the detent position.

Other:

- Nil -

3/10/85

MONCTON FLYING CLUB
PIPER PA 38 TOMAHAWK C-GTTA
MONCTON AIRPORT, NEW BRUNSWICK
6 SEPTEMBER 1984

REPORT NUMBER: 84-A40021 (Accident)
LOCAL TIME: 1750 ADT
OPERATION: Flying Club Training
DAMAGE: Substantial
PILOT LICENCE: Student

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	25	25
LAST 90 DAYS	25	25

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The student pilot, who was on his second solo flight, was conducting touch-and-go landings. On the third landing, the nosewheel collapsed, and the aircraft veered off the left side of the runway.

During the first two landings, tower personnel observed that the aircraft porpoised after the initial touchdown. On the third landing, the pilot did not flare the aircraft, and as a result, it touched down on the nosewheel first. The force of the landing was sufficient to collapse the nosewheel.

The student pilot had flown a total of 30 minutes solo at the time of the accident. He had flown his initial solo, had undergone an additional one hour of dual instructional training, and was conducting circuits as part of his second solo flight. He had received instruction on porpoise or bounce recovery and had been supervised to an appropriate degree for his experience level.

FINDINGS:

Cause Related:

1. The pilot did not flare the aircraft immediately before touchdown.

Other:

- Nil -

22/04/86

The Canadian Aviation Safety Board investigated this occurrence for the purpose of advancing aviation safety. It is not the object of the Board to determine or apportion any blame or liability.

AIRCRAFT OCCURRENCE REPORT

AIR NIAGARA LTD.
CESSNA AIRCRAFT CO.
500 CITATION C-GXFZ
ORILLIA, ONTARIO
26 SEPTEMBER 1984

REPORT NUMBER 84-040066

SYNOPSIS

The aircraft was on a VFR training flight from the Toronto/Lester B. Pearson International Airport. After departing Toronto the aircraft was flown to the Orillia Airport. At the Orillia Airport, the crew stated their intention to do a fly-past on runway 04.

The aircraft descended to approximately 150 to 200 feet over the runway at a speed of about 200 knots. During the climb-out and at about 1,000 feet above the ground, the aircraft started a roll to the right to an inverted attitude. It then descended steeply, striking the ground right side up in a near vertical left-wing-down attitude.

Ce rapport est disponible en français.

19 November 1985

3.0 CONCLUSIONS

3.1 Cause-related Findings:

1. The contributing factors and causes of this accident could not be determined.

3.2 Other Findings

1. While in a climb, the aircraft was observed to roll to the right to an inverted nose-down attitude before disappearing from view.

2. The aircraft struck the ground in a steep, near vertical attitude at high speed.

3. Both aircraft engines were developing substantial and similar power at the time of impact.

4. There was no evidence of fire either before or after the occurrence.

5. There was no evidence of structural failure of the aircraft prior to impact.

6. There was no indication that a failure or malfunction of the aircraft's flight control components or systems occurred prior to impact which would have caused a loss of control.

7. There was no evidence of any in-flight difficulties with the aircraft prior to or during the visual fly-past.

8. The accident occurred in VFR weather.

9. Detailed autopsies of the pilots could not be carried out, therefore, the physical state of the pilots could not be determined.

10. The aircraft was certified, equipped, and maintained in accordance with existing regulations and approved procedures.

11. The weight and centre of gravity were within the prescribed limits.

12. The flight crew was licensed and qualified to conduct the training flight in accordance with existing regulations.

13. The investigation was hampered by the lack of an aircraft cockpit voice recorder and flight data recorder.

4.0 RECOMMENDATIONS

4.1 Action Taken

No urgent safety action or interim recommendations were initiated by the Canadian Aviation Safety Board (CASB) as a consequence of this accident.

4.2 Further Actions Required

The CASB is concerned that primary cause factors in many accidents, such as this accident involving an Air Niagara Cessna 500, go undetermined. There is frequently a lack of sufficient information, such as that which could be derived from a cockpit voice recorder (CVR) or flight data recorder (FDR), to assist the accident investigator. At present, Air Navigation Orders, Series II, No. 13 and 14 prescribe minimum CVR/FDR equipment requirements only for turbine engine powered, pressurized aircraft that:

a) have a maximum certified take-off weight of more than 12,500 lb; and

b) are registered as a commercial aircraft under Part II of the Air Regulations.

It is the intention of the CASB to define a statement of requirements for CVR/FDR equipment for a broader range of aircraft than currently prescribed, including helicopters. Based upon this statement of requirements the CASB will be recommending that Air Navigation Orders be amended to include increased requirements for the carriage of CVR and FDR equipment.

BRAMPTON FLYING CLUB
CESSNA 152 C-GYJH
NOBLETON, ONTARIO 2 mi E
27 SEPTEMBER 1984

REPORT NUMBER: 84-040067 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 2125 EDT
OPERATION: Flying Club Training
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	123	114
LAST 90 DAYS	60	51

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft was on the last leg of a solo cross-country training flight. Fifteen miles east of the destination airport, the engine stopped, and the pilot completed a night forced landing on rough hilly terrain. The nose gear collapsed during the landing roll-out, and the aircraft nosed over on to its back. Examination of the fuel system showed that the fuel tanks were empty. The pilot also stated that he did not lean out the mixture in order to conserve fuel during the flight.

Prior to departure, the pilot had refuelled the aircraft's fuel tanks to full capacity. However, before commencing the return flight, he had topped the tanks to a level one inch below the filler neck. Investigation showed that an additional six litres of useable fuel could have been added to each tank. The additional fuel would have extended the range of the aircraft and assured a safe arrival at destination.

Because the fuel tanks had not been filled completely and the mixture had not been leaned out, the engine stopped as a result of fuel exhaustion.

.../2

19/10/85

FINDINGS:

Cause Related:

1. The engine failed before the aircraft reached its destination as a result of fuel exhaustion.

2. The mixture had not been leaned out during the flight.

Other:

-- Nil --

COLLINGWOOD AVIATION CENTRE
PIPER PA28-140 C-GDQR
ALLISTON, ONTARIO 5 mi NE
17 OCTOBER 1984

REPORT NUMBER: 84-040074 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1440 EDT
OPERATION: Specialty Flying Training
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	250	175
LAST 90 DAYS	50	2

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was ferrying the aircraft back to its base when he encountered deteriorating weather. As the cloud based had lowered and the visibility had been reduced by rain, the pilot elected to land at a private grass airstrip. Following touchdown, the aircraft continued off the left side of the runway and collided with fence posts.

The pilot had checked the weather forecast early in the day, but not just before the ferry flight. Weather en route and at destination had deteriorated more rapidly than originally forecast.

When the aircraft touched down, it was left of the runway centre line on a heading slightly left of the runway heading. The path of the aircraft ran directly from the point of touchdown to where the aircraft collided with the fence. The pilot reported that he had attempted to align the aircraft with the runway by applying rudder and then brake, but braking action was ineffective because the grass was wet.

06/08/86

FINDINGS:

Cause Related:

1. The pilot began his return flight without seeking current weather information.

2. Because of unexpected deteriorating weather, the pilot elected to land at a private grass airstrip.

3. The aircraft touched down slightly left of the runway heading and continued off the left side of the runway.

4. Directional control and braking action were ineffective because of the wet grass, and as a result the aircraft veered off the left side of the runway.

Other

- Nil -

06/08/86

MAPLE AIR SERVICES LTD.
CESSNA 152 C-GRKU
MAPLE AIRPORT, ONTARIO
19 JANUARY 1985

REPORT NUMBER: 85-050001 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1127 EST
OPERATION: Specialty Flying Training
DAMAGE: Substantial
PILOT LICENCE: Student

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	28	23
LAST 90 DAYS	12	12

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The student pilot was completing his first circuit of a supervised solo flight. The runway was covered with compacted ice and snow. After touching down in a cross-wind from the right, the aircraft drifted left into a snowbank bordering the runway and nosed over.

The investigation could not determine the precise reason for the left drift off the runway. The evidence suggests that the cross-wind, the slippery runway, and pilot inexperience were all factors which contributed to the loss of directional control. Although the flight was supervised, the student had not received a pre-solo dual check, nor had he received a briefing on winter flying.

FINDINGS:

Cause Related:

1. The runway was covered with compacted snow and ice.
2. Directional control was not maintained after touchdown, and the aircraft drifted left into a snowbank.
3. The inexperienced student had not received a pre-solo check or a briefing on winter flying conditions from supervisory personnel.

Other

-Nil-

06/08/86

BROCKVILLE FLYING CLUB
PIPER PA28-140 C-GQIR
BROCKVILLE, ONTARIO
03 MARCH 1985

REPORT NUMBER: 85-050010 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1015 EST
OPERATION: Flying Club Training
DAMAGE: Substantial
PILOT LICENCE: Student

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	59	59
LAST 90 DAYS	4	4

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The student pilot was practising solo cross-wind landings immediately following a check flight with his instructor. A touchdown was completed in a 10-knot cross-wind blowing 70 degrees from the left. As the nosewheel touched down, the left wing lifted, and the aircraft veered to the right on the right main wheel and nosewheel. The pilot applied left rudder, and the aircraft turned sharply left through 90 degrees, causing the right wing to strike the runway.

The student applied correct cross-wind technique until touchdown. Evidence indicates that right rudder was still being applied and that the nosewheel was steering right when it touched the runway. The aircraft immediately veered to the right, and the left wing lifted. When the pilot applied left rudder to realign the aircraft with the runway, he overcorrected, causing an abrupt left turn.

FINDINGS:

Cause Related:

1. On touchdown, the nosewheel was pointed right, causing an immediate turn to the right.
2. The pilot overcorrected with left rudder, causing an abrupt left turn.

Other:

-Nil-

26/06/86

BRAMPTON FLYING CLUB
CESSNA 152 C-GRLF
BRAMPTON AIRPORT, ONTARIO
11 MARCH 1985

REPORT NUMBER: 85-050017 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1500 EST
OPERATION: Flying Club Training
DAMAGE: Substantial
PILOT LICENCE: Student

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	23	23
LAST 90 DAYS	11	11

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The student pilot of the Cessna 152 was practising the soft field landing technique recommended in the Transport Canada Flight Training Manual. In accordance with this procedure, he touched down on the main landing gear at a reduced airspeed and held the nosewheel off the ground. Following touchdown, the aircraft yawed to the left and ran onto the soft grass beside the runway. The nosewheel then struck a snowbank and the aircraft nosed over.

The wind was light and not a factor in maintaining directional control. The aircraft yawed left for undetermined reasons and the inexperienced pilot was unable to maintain directional control.

FINDINGS:

Cause Related:

1. The aircraft yawed left during the landing roll for undetermined reasons.

2. The inexperienced pilot was unable to maintain directional control during the landing roll-out.

3. The aircraft's nosewheel struck a snowbank beside the runway.

Other:

--Nil--

26/06/86

MARITIME AERIAL SPRAYING SERVICES LTD.
PIPER PA25-235 C-GLJV
WATERVILLE AIRPORT, NOVA SCOTIA 2 mi N
4 JULY 1984

REPORT NUMBER: 84-A40016 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 0715 ADT
OPERATION: Specialty Aerial Application and Distribution
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2,500	500
LAST 90 DAYS	63	Unknown

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was spraying a field of potatoes on a hot humid day. On the third swath, as the aircraft approached the edge of a field in a slight tail wind, the pilot pulled up to clear a power line. The aircraft struck the top wire and the hydro pole. The wire was cut by the wire-cutters on the main gear legs, and the pole penetrated the belly of the aircraft and struck the right horizontal stabilizer. The pilot was unable to maintain altitude with full aft elevator control. He then dumped the chemical load, regained control of the aircraft, and landed without further incident at an airport, two miles from the accident site.

The pilot was attempting to spray to the edge of the field and, in the existing environmental conditions, did not pull the aircraft up in time to clear the power line and pole.

FINDINGS:

Cause Related:

1. During an attempt to spray to the edge of the field, a pull-up was not made in time to clear the power line.

Other:

1. The aircraft wire-cutters severed hydro wires and prevented more serious injury or aircraft damage.

18/12/85

NORTHERN WATERS AIR SERVICE
CESSNA A185E C-GGRL
CLIFF LAKE, ONTARIO
03 JULY 1984

REPORT NUMBER: 84-C40047 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 2030 CDT
OPERATION: Commercial Non-Revenue
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	900	200
LAST 90 DAYS	200	200

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was conducting a test flight on the float-equipped aircraft following major engine work. Shortly after take-off at about 100 ft above ground level, the engine lost power. A forced landing was carried out in a nearby swamp.

An examination of the fuel sumps revealed that the fuel was contaminated with water. Prior to flight, the fuel sumps were drained, and fuel was added from a 45-gallon drum. During the investigation the fuel was drained from the aircraft. When it was refuelled from a different supply, the engine ran normally. It was determined that the 45-gallon drum was the source of the contamination.

FINDINGS

Cause Related:

1. The 45-gallon drum that was used to add fuel to the aircraft was contaminated with water.

2. The engine's loss of power was due to the presence of water in the fuel.

Other:

-- Nil --

19/09/85

GOOSE BAY AIR SERVICES LTD.
CESSNA 185, C-GJQN
HEBRON FIORD, LAB. NFLD.
09 JULY 1984

REPORT NUMBER: 84-A40017
LOCAL TIME: 1350 NDT
OPERATION: Charter
DAMAGE: Destroyed
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	3000	1200
LAST 90 DAYS	200	40

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The float-equipped aircraft encountered severe mechanical turbulence during descent for a water landing. One of nine non-approved five-gallon plastic containers of outboard motor gasoline carried on board was knocked over causing a small amount of fuel to leak into the cargo area. The aircraft battery, located just behind the baggage compartment, was also upset at this time causing it to arc against the battery box. A normal landing was completed and upon investigation of the cargo area the pilot realized the severity of the situation. The gasoline ignited just as he was exiting the aircraft, forcing him to jump into the water without first being able to reach his life vest.

The aircraft was totally consumed by fire and sank within 10 minutes. The pilot, a non-swimmer, was unable to reach his life vest and hung onto a float until rescued by a boat.

Battery installation, in accordance with the aircraft manufacturer's instructions, would have precluded the possibility of it moving in air turbulence and arcing against its box. Had the gasoline been carried in approved containers that were secured, the fire would have been unlikely.

DATE: 9 April 1985

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FINDINGS:

Cause Related

1. The aircraft battery was not installed in accordance with the manufacturer's specification.
2. Gasoline, a combustible cargo, was carried in containers that were not approved for this purpose.
3. The load had not been secured.

Other

1. The pilot, a non-swimmer, was not wearing his life vest nor was he able to reach it due to the fire.

YORKTON FLYING SERVICE
GRUMMAN AMERICAN G164B, C-GPSM
NORQUAY, SASKATCHEWAN 1 mi S
12 JULY 1984

REPORT NUMBER: 84-C40048 (Accident)
LOCAL TIME: 1900 CST
OPERATION: Specialty Aerial Application
DAMAGE: Minor
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	5000	250
LAST 90 DAYS	160	140

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-
OTHER	-	1	-

SUMMARY REPORT:

As acceleration seemed slower than normal at the start of the take-off run, the pilot brought the aircraft to a stop on the strip. He then saw his helper, who was carrying a fire extinguisher, approach the machine toward the propeller arc. The pilot shut the magnetos off and shouted a warning, but the man continued and was struck by the still turning propeller.

The investigation revealed that the parking brake did not release completely prior to taxi causing the right brake to bind. Friction created heat build-up, which in turn started a fire in the main wheel and brake assembly. The ground helper's attention was focussed on the fire at the time of the occurrence.

FINDINGS:

Cause Related:

1. Poor acceleration was due to a binding brake, caused by incomplete release of the parking brake.

2. Heat build-up caused fire to break out in the right main wheel and brake assembly.

3. The ground helper, distracted by the fire, did not notice the turning propeller.

Other:
- Nil -

DATE: 9/05/85

CONAIR AVIATION LTD.
CESSNA T210K C-FBSE
KEREMEOS, BRITISH COLUMBIA 7 mi W
16 JULY 1984

REPORT NUMBER: 84-P40028 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1145 PDT
OPERATION: Specialty Aerial Control
DAMAGE: Destroyed
PILOT LICENCE: Senior Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	3,070	188
LAST 90 DAYS	170	32

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	2	-	-
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft left Penticton on its second flight of the day to observe a fire in the mountains south of Penticton. A search was initiated when contact with the aircraft could not be made. A military search and rescue aircraft visually located the aircraft a few hours later on the south slope of the Olalla Creek valley at an elevation of about 5,600 feet above sea level.

The aircraft struck trees in a left turn on a heading left of the original track. On impact with the ground, the aircraft cartwheeled, and the forward cabin area was destroyed. Examination of the aircraft indicated that the landing gear and flaps were retracted and that the engine was producing substantial power.

Rather than climbing to altitude before proceeding on track, the pilot, as on the first flight, likely chose to cruise climb along the track exchanging airspeed for altitude. The temperature at the accident site was about 19 degrees Celsius, considerably warmer than the temperature experienced on the first flight. In addition, it is likely that localized vertical drafts would have become more frequent and stronger as the day progressed. With aircraft performance degraded because of the temperature increase and the presence of vertical drafts, it is likely that the pilot was not able to climb above the terrain and the trees were struck during a turn to reverse track.

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21/11/85

FINDINGS:

Cause Related:

1. A cruise climb on track was likely attempted.

2. Aircraft performance was degraded because of relatively higher temperatures and vertical drafts.

3. The aircraft could not climb over the terrain and struck trees during an attempt to reverse course.

Other:

- Nil -

21/11/85

DOUGAN'S AIRSPRAY
CESSNA 150H CF-WXL
PORCUPINE PLAIN, SASKATCHEWAN 5 mi NE
19 JULY 1984

REPORT NUMBER: 84-C40050 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1951 CST
OPERATION: Specialty Aerial Application and Distribution
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	550	115
LAST 90 DAYS	15	12

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	-	-	-

SUMMARY REPORT:

The operator of an aerial application firm installed a new type of ultra-low volume sprayer in the Cessna 150. A pilot, with little previous agricultural application experience, was hired and assigned the task of spraying some wheat fields with the insecticide Lorsban. The first four swaths were applied at low level by flying a complete circuit of the field after each swath. On the completion of the fourth swath, the aircraft climbed to about 80 feet, then turned sharply to the left. After turning through 180 degrees, the aircraft stalled and dove vertically into the ground killing the pilot.

The solution tank, which was mounted in the passenger seat position, had broken loose from its mounts on impact. When examined, the tank filler cap was not in position, and the chemical had contaminated the cabin area. The pilot was wearing a respirator, but his helmet was found stowed on the cabin floor between the right hand rudder pedals and the solution tank.

The aircraft stalled while the inexperienced agricultural pilot was attempting a climbing turn at low altitude. Because provincial officials received erroneous information on the toxicity of the spray chemical, indicating that it was highly toxic, an autopsy was not conducted on the pilot to protect those that would have to conduct the post-mortem. It was later determined to be a medium hazard chemical. Since an autopsy was not performed, it was not possible to determine if the pilot had been exposed to the insecticide resulting in any form of incapacitation. Flight tests were conducted to determine if the pilot's helmet had fouled the rudder controls, but the tests were inconclusive.

There was no emergency locator transmitter (ELT) installed in the aircraft.

.../2

18/03/86

FINDINGS:

Cause Related:

1. The pilot had little experience in aerial application.
2. The aircraft stalled and crashed for undetermined reasons during a turn at low altitude.

Other:

1. An ELT was not installed in the aircraft
2. The pilot's helmet was found stowed on the cabin floor.

18/03/86

SCHMIT AERO SERVICE
AYRES S-2R C-GPNG
KAMSACK, SASKATCHEWAN 10 mi SW
14 JULY 1984

REPORT NUMBER: 84-C40051 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1950 CST
OPERATION: Specialty Aerial Application and Distribution
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1450	674
LAST 90 DAYS	200	60

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

During a normal spray run, the engine failed and a forced landing was carried out on a farmer's field. Following touchdown, the main landing gear collapsed.

The investigation revealed that only two of the required three bearings had been installed on the supercharger impeller shaft during the last engine overhaul. The resultant bearing failure allowed the unsupported impeller shaft to wobble and create sufficient internal damage to cause the engine power loss. The engine (Pratt & Whitney R-1340-S3H1) had operated only 135 hours since overhaul.

FINDINGS:

Cause Related:

1. One of the three impeller shaft bearings was not installed during the last engine overhaul.

2. The absence of the bearing led to internal engine failure.

Other:

-- Nil --

DRAFT NO. 5
DATE: 19/9/85
HQ ANALYST: C08/H19

KANATA AVIATION LTD
GRUMMAN G164B C-GSPP
ALBERTON, P.E.I.
20 JULY 1984

REPORT NUMBER: 84-A40018 (Accident)
LOCAL TIME: 0700 ADT
OPERATION: Specialty Aerial Application
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2250	100
LAST 90 DAYS	110	100

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft was being flown on a potato spraying operation over a field that had a telephone wire at one end. As the pilot pulled up at the end of the field, the lower left wing of the aircraft struck the top of a pole. The lower left wing was severely damaged structurally by the impact.

The pilot had made several runs over the field and was aware of the hazard.

FINDINGS:

Cause Related:

The aircraft climb was initiated too late to avoid the telephone pole.

Other:

- Nil -

19/09/85

AGRIC AIR
PA 25-235 C-GUJD
DUNHAM, QUEBEC
20 JULY 1984

REPORT NUMBER: 84-Q40044 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 0800 EDT
OPERATION: Specialty Aerial Application and Distribution
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2,040	1,750
LAST 90 DAYS	80	80

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

Prior to the flight, the pilot estimated that the one hour of fuel remaining would be sufficient to spray 30 acres of orchard property. During the aerial application, a greater spray overlap was required since the surface wind had increased significantly. Upon completion of the last pass, the engine stopped and the pilot carried out a forced landing on an adjacent corn field. The right wing struck the ground on landing.

The increased spray overlap required more fuel than planned and available. As the pilot was concentrating on the spraying operation, he did not monitor the fuel remaining, and the engine stopped from fuel exhaustion.

FINDINGS:

Cause Related:

1. The increase of spray overlap used more fuel than anticipated.
2. The fuel state was not monitored.
3. The engine stopped from fuel exhaustion.
4. The aircraft was substantially damaged when the right wing struck the ground on landing.

Other:

- Nil -

19/11/85

ALPHA-BRAVO FLYING SERVICE
CESSNA A188B C-GSNP
CARNDUFF, SASKATCHEWAN 65 mi W
22 JULY 1984

REPORT NUMBER: 84-C40055 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1930 CST
OPERATION: Specialty Aerial Application and Distribution
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,100	150
LAST 90 DAYS	90	90

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot of a Cessna Ag-Truck was applying the chemical Dimemthoate to a grain field. During a spray run, the aircraft flew under two power lines, then struck a third line. The aircraft struck the ground in a nose-down attitude and overturned.

During his initial survey of the field, the pilot observed the presence of the three lines. He decided that he could spray under the first two, but due to high grass and rock outcrops, the third would have to be overflown. During a spray run, the pilot flew under the first two lines, but lost sight of the third line as he climbed. He then began to descend and passed directly under the line. The pilot then heard a loud noise as the aircraft tail struck the line and control of the aircraft was lost. Although a wire cutter was mounted on the vertical stabilizer, it was not capable of severing the high strength wire.

The pilot sustained serious injuries and lay unconscious in the cockpit for an undetermined period of time. During this period, he was soaked in the toxic spray chemical which had leaked from the ruptured hopper. The integrity of the cockpit area and the restraint system were retained throughout the occurrence. Damage to the pilot's helmet indicated that the helmet had likely prevented a fatal head injury.

FINDINGS:

Cause Related:

1. The pilot lost sight of a power line during a spray run.

18/03/86

2. The aircraft struck a line causing a loss of control.

Other:

1. The pilot's helmet likely prevented a fatal head injury.

18/03/86

RUSSELL AIR SERVICES LTD.
CESSNA A188B C-GYCS
SWAN RIVER, MANITOBA
23 JULY 1984

REPORT NUMBER: 84-C40056 (Accident)
LOCAL TIME: 1450 CDT
OPERATION: Commercial Non-Revenue
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	875	45
LAST 90 DAYS	50	45

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

Shortly after take off, the right hand battery compartment door opened. Power and airspeed were reduced to minimize damage to the door. The pilot then commenced a left hand turn to return to the airfield. During the turn, the aircraft stalled at low altitude and struck the ground in a left-wing-down, nose-low attitude.

The stall occurred as a result of the reduced airspeed associated with the power reduction, the increased wing loading associated with the turn or a combination of both.

During the preflight check, the unlocked battery compartment door was not noticed.

FINDINGS:

Cause Related:

1. The unlocked battery compartment door was not noticed during the preflight check.
2. The right hand battery compartment door opened in flight.
3. Power was reduced to minimize damage to the door.
4. The aircraft stalled because insufficient airspeed was maintained to sustain flight while manoeuvring at low altitude.

Other:

-- Nil --

19/09/85

BRUNSWICK AIR SERVICE
PIPER PA 25-235 C-FZAL
WOODVILLE, NEW BRUNSWICK)
30 JULY 1984

REPORT NUMBER: 84-A40019 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 0945 ADT
OPERATION: Specialty Aerial Application and Distribution
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	705	190
LAST 90 DAYS	118	114

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

While engaged in early morning aerial application operations, the spray aircraft experienced an unexpected partial loss of power. As he was unable to gain altitude and fly over the telephone wires at the edge of the field, the pilot attempted to fly under the wires. The aircraft struck the lowest wire which stretched and then snapped, resulting in damage to the windscreen, spray gear and rudder. Power was partially regained, and the pilot was able to maintain sufficient altitude to return to the farm airstrip, where he landed safely. Meteorological information indicated that the aircraft was operating in conditions that were conducive to carburettor icing.

The engine was removed and during a test stand run, it developed full rpm. However, an engine tear down revealed broken compression rings and scored cylinder walls. Although it was capable of full rpm, the engine was not developing the required power, because of its deteriorated mechanical condition.

Although the engine could not develop full rated power because of its deteriorated mechanical condition, the evidence indicates that the partial loss of power was due to carburettor icing.

The aircraft was equipped with a windscreen wire deflector bar just forward of the windscreen. Instead of being deflected, the wire snagged under the foot of the bar's leading edge and snapped.

19/09/85

FINDINGS:

Cause Related:

1. The aircraft was operated in climatic conditions conducive to carburettor icing which most probably contributed to the lack of engine power.
2. The engine was not capable of developing full power because of its deteriorated mechanical condition.

Other:

1. The windscreen wire deflector did not function as required.

19/09/85

EXECUTIVE AVIATION INC. OF DETROIT
CESSNA 411-A N444EA
OSHAWA AIRPORT, ONTARIO
30 JULY 1984

REPORT NUMBER: 84-040905 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1933 EDT
OPERATION: International Charter
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	3300	25
LAST 90 DAYS	250	25

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot had completed a visual approach and landing on Runway 22. The Tower instructed the pilot to proceed to the end of the runway and clear left onto the taxiway. As the pilot started the turn to clear the runway, the right main landing gear collapsed. The aircraft which was taxiing at about 10 kt, swung to the right through 270 degrees and skidded to a stop.

The investigation revealed that the bell crank assembly of the main gear retracting linkage had failed in overload. It could not be determined how or why the side link came out of its over-centre locked position. However, when this happened the weight of the aircraft was placed on the bell crank assembly. As a result, a sequence of overload failures occurred in the bell crank assembly, causing the right main landing gear to collapse.

FINDINGS:

Cause Related:

1. It could not be determined how or why the main landing gear side link became unlocked from the over-centre position.

2. The bellcrank assembly of the main landing gear retracting linkage failed due to overload.

Other:

-- Nil --

19/10/85

PROPAIR INC.
CESSNA 180 C-FILD
FAVERY LAKE, QUEBEC
05 AUGUST 1984

REPORT NUMBER: 84-Q40054 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 2030 EDT
OPERATION: Charter
DAMAGE: Minor
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,105	183
LAST 90 DAYS	83	83

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

Prior to take-off and following a prolonged downwind taxi in rough water, the pilot of the float-equipped aircraft shut down the engine so that he could remove bilge water from the floats. Despite attempts to pump the left float dry, it remained dangerously low in the water. The pilot then decided to taxi to shore; however, approximately 1,000 feet from the shoreline he realized that he was not going to make it. The aircraft was shut down again, and the passengers were issued life-jackets. Shortly after, the left float began to sink, and the left wing tip came to rest on the bottom of the lake in approximately 20 feet of water. Two of the passengers swam to shore while the pilot and passenger stayed with the aircraft on top of the good float. Twelve hours later they also swam to shore.

The investigation revealed that two defective covers on the left float had allowed water to leak into the two rear-float compartments.

FINDINGS:

Cause Related:

1. There were two defective float covers on the left float, and, as a result, water leaked into the two rear compartments of the float.
2. A prolonged downwind taxi aggravated leakage into the left float.

Other:

- Nil -

06/08/86

INTERLAKE AIR LTD.
GRUMMAN AMERICAN G164A C-GUND
SILVER PINES, MANITOBA 5 mi NE
7 AUGUST 1984

REPORT NUMBER: 84-C40064 (Accident)
LOCAL TIME: 1900 CDT
OPERATION: Specialty Aerial Application
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	4800	100
LAST 90 DAYS	200	100

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

During a spray run over a forested area the engine began to lose power. It started to smoke when the pilot advanced the throttle, so he dumped the load of chemical and carried out a forced landing in a clearing. After touchdown the aircraft rolled about 50 ft before the right main gear struck a stump, flipping the machine inverted.

Inspection revealed a crack of undetermined origin in the number 3 cylinder, which extended over the cylinder head from the front to the rear spark plug. The engine, manufactured in 1952, had been maintained in accordance with approved procedures and showed no evidence of improper operating technique. According to an overhaul agency, cracked cylinders are not uncommon in this model engine.

FINDINGS:

Cause Related:

1. The engine lost power due to a crack in the number 3 cylinder.

2. The crack occurred during normal engine operation.

3. No unobstructed landing areas were available to the pilot.

Other:

- Nil -

DATE: 9/05/85

ORILLIA AVIATION LIMITED
CESSNA 310I C-GKFB
ORILLIA AERODROME ONTARIO
17 AUGUST 1984

REPORT NUMBER: 84-040057 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 2000 EDT
OPERATION: Commercial Charter
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	8,500	3,000
LAST 90 DAYS	225	100

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was on a return flight from Buttonville Airport to Orillia. On the final approach, the pilot selected the landing gear down, but the gear indicator light did not illuminate. A low pass was made over the airport and ground personnel advised the pilot that the landing gear appeared to be fully down. The left main landing gear collapsed during the landing roll.

The investigation revealed that a spherical rod end bearing on the end of the uplock actuating rod had rusted and seized on the pivot bolt. This condition caused the uplock actuating rod to bend. The bent rod, in turn, restricted the travel of the actuating system and prevented it from moving into the geometric lock position. When the aircraft's weight was applied to the gear, the left main gear collapsed.

The last 100 hour inspection had been carried out 25 days prior to the accident and in that time, the aircraft had flown approximately 46 hours. The manufacturer recommends that all spherical rod end bearings be lubricated on the 100 hour inspection. This particular bearing had not been lubricated during the last 100 hour inspection.

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18/12/85

FINDINGS:

Cause Related:

1. The spherical rod end bearing had not been lubricated during the last 100 hour inspection.
2. The spherical rod end bearing rusted and seized because of a lack of lubrication.
3. The spherical rod end bearing rusted and seized on the pivot bolt, causing the uplock actuating rod to bend.
4. The bent uplock actuating rod restricted the movement of the actuating system.
5. The landing gear collapsed because the actuating system could not move into the geometric lock position.

Other:

- Nil -

18/12/85

AUSTIN AIRWAYS LTD.
BEECHCRAFT 99 C-GFQC
TIMMINS, ONTARIO
01 DECEMBER 1984

REPORT NUMBER: 84-040080 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1520 EST
OPERATION: Commercial Non-Revenue
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	5,600	192
LAST 90 DAYS	240	70

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot had just commenced the take-off roll on a test flight when the landing gear collapsed. The aircraft settled onto the fuselage baggage pod and slid a short distance before stopping.

The aircraft had been recently imported and had undergone an Inspect, Test, and Repair As Necessary (ITRAN) inspection prior to the issuance of a Certificate of Airworthiness. At the time, several optional customer kits including the hydraulic landing gear system were installed. The hydraulic system replaced an electrical/mechanical system which was known to be trouble-prone. The inspection and modifications, with the exception of the baggage fuselage pod, were carried out at the company's maintenance facility.

Examination of the landing gear electrical system revealed that the wiring harness to the power pack diode had short-circuited because it had been damaged during installation. The short-circuit caused the pressure check valve to demand pressure to the retraction phase of the system, regardless of the gear selector position. The hydraulic landing gear system in this aircraft is an older Beechcraft design. Later production systems have been modified to simplify the electrical portion of the system. In the newer installations the power pack diode has been eliminated.

... /2

26/06/86

FINDINGS:

Cause Related:

1. The electrical wiring for the landing gear hydraulic system was damaged during installation.
2. The damage resulted in a short-circuit which caused the pressure check valve to demand pressure to the retraction phase of the system.
3. The landing gear retracted when the short-circuit occurred in the electrical system.

Other:

- Nil -

26/06/86

EDMONTON FLYING CLUB
CESSNA 172 C-GQCL
ST. ALBERT, ALBERTA
09 DECEMBER 1984

REPORT NUMBER: 84-W40080 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1345 MST
OPERATION: Specialty Recreational Flying
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	47	6
LAST 90 DAYS	6	6

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

During the take-off run, at approximately 800 feet down the runway, the aircraft began to drift to the right. Corrective action was taken, and the aircraft suddenly veered across the runway to the left. The pilot then reduced the power, and at a speed of 50 knots, he rejected the take-off. The aircraft began to decelerate but was still heading for the left side of the runway. At an estimated speed of 40 knots, the nosewheel struck a ploughed snowbank beside the runway. The aircraft pitched up on to its nose and turned about 90 degrees from its original heading. It then fell back on its landing gear on the edge of the runway.

The investigation failed to reveal any malfunction with the aircraft controls. The pilot realized that the aircraft was going off the runway to the right and he attempted to regain directional control. However, he overcorrected and was unable to recover or stop the aircraft before it struck the snowbank on the left side of the runway.

FINDINGS:

Cause Related:

1. Directional control was lost during the take-off.

Other:

- Nil -

21/11/85

KENORA FLYING CLUB
CESSNA 172M C-GFVP
KENORA, ONTARIO
12 JANUARY 1985

REPORT NUMBER: 85-C50004 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1430 CST
OPERATION: Specialty Recreational Flying
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	150	12
LAST 90 DAYS	3	3

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

After landing, the aircraft inadvertently became airborne. The pilot heard the stall warning horn and pushed the control column forward. The aircraft contacted the runway, and the nose gear assembly collapsed.

The hourly weather observations taken before and after the accident reported relatively light winds with no gusts. Proper recovery from a bounced landing, that is, the application of power to cushion the second touchdown, was not used. The aircraft contacted the runway with sufficient force to collapse the nose gear assembly.

FINDINGS:

Cause Related:

1. The aircraft bounced on landing.

2. Proper recovery action from a bounced landing was not used.

Other:

-- Nil --

18/03/86

ST. THOMAS AVIATION
CESSNA 172N C-GAIW
ST. THOMAS AIRPORT, ONTARIO
16 FEBRUARY 1985

REPORT NUMBER: 85-050006 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1102 EST
OPERATION: Specialty Recreational Flying
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	450	400
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

The pilot, with three passengers on board, was conducting a flight from Brantford, Ontario to St. Thomas, Ontario. Following touchdown in a cross-wind from the left, the aircraft drifted to the right, ran off the runway into a two-foot-high snowbank, and nosed over.

The pilot used the normal wing-low method of drift correction but when he ceased to maintain into-wind aileron after touchdown, the cross-wind component, estimated at 20 knots, turned the aircraft to the right. The pilot applied full left rudder but did not use left brake to assist in maintaining directional control, and as a result, the aircraft veered off the runway into deep snow. The aircraft flight manual states that the maximum demonstrated cross-wind component is 15 knots.

The rapid deceleration of the wheels in the deep snow caused the aircraft to nose over. Another runway, which would have allowed the pilot to land into the wind could not be used because of its icy condition.

FINDINGS:

Cause Related:

1. The aircraft landed with an estimated 20-knot cross-wind component.
2. The aircraft maximum demonstrated cross-wind component is 15 knots.
3. The runway used, although out-of-wind, was the only one available for landing.
4. The recommended cross-wind landing technique to maintain directional control after touchdown was not used.

.../2

26/06/86

5. Directional control was lost, and the aircraft veered off the runway into a snowbank.

6. Because of the rapid deceleration of the wheels in the snowbank, the aircraft nosed over.

Other:

- Nil -

26/06/86

LEUENBERGER AIR SERVICE LTD.
DE HAVILLAND DHC-3 (Single Otter) C-FSOX
OGOKI POST, ONTARIO
20 FEBRUARY 1985

REPORT NUMBER: 85-050008 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1100 EST
OPERATION: Charter
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	8,000	400
LAST 90 DAYS	200	200

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft was landing on a snow-covered gravel airstrip that was 2,000 feet long by 75 feet wide. The wind was blowing 90 degrees from the left and gusting to 24 knots. During the landing roll, as the tail wheel touched the runway, the aircraft swung sharply left, and the tail hit the right snowbank.

The landing was being attempted in a cross-wind which exceeded the maximum demonstrated cross-wind component for this aircraft type. When a gust struck the aircraft during the landing roll-out, the pilot was unable to control the swing into wind.

FINDINGS:

Cause Related:

1. The landing was attempted in a cross-wind which exceeded the maximum demonstrated cross-wind component for this aircraft type.

2. A gust of wind induced an uncontrollable swing to the left, and the aircraft hit a snow bank.

Other:

-Nil-

26/06/86

KYRO'S AIRWAYS LTD.
DE HAVILLAND DHC-2 C-GKAO
GERALDTON, ONTARIO
21 MARCH 1985

REPORT NUMBER: 85-050020 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1450 EST
OPERATION: Commercial Non-Revenue
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	12,261	3,923
LAST 90 DAYS	74	20

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was returning to Geraldton after delivering supplies and passengers to Ogoki Post. He landed on runway 26 in a cross-wind 90 degrees from the left at 18 knots gusting to 27. After touchdown, the aircraft swung 90 degrees to the left, ran off the runway and hit a snowbank.

The DHC-2 flight manual indicates that cross-winds in the order of 10 knots are considered limiting. After touchdown, the pilot had insufficient rudder control to prevent the aircraft from swinging into the strong cross-wind.

The only runway at Geraldton Airport is oriented east/west. An alternate landing site was available on a nearby frozen lake where the pilot could have carried out an into-wind landing.

FINDINGS:

Cause Related:

1. The landing was carried out in a cross-wind which exceeded the maximum recommended in the aircraft flight manual.
2. An alternate landing site, which would have permitted an into-wind landing, was not used.

Other:

-Nil-

26/06/86

NORFOLK AERIAL SPRAYING LTD.
PZL MIELEC M18 DROMADER C-GMVS
UPPER BLACKVILLE AIRPORT, NEW BRUNSWICK 10 mi WSW
29 MAY 1985

REPORT NUMBER: 85-A50011 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 2030 AST
OPERATION: Specialty Aerial Application and Distribution
DAMAGE: Destroyed
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	4,500	100
LAST 90 DAYS	25	25

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was conducting a forest insecticide spray run. When the aircraft was half-way through the spray run, at an estimated altitude of 75 feet above trees, the engine rpm quickly but smoothly degraded to idle power. The pilot steered the aircraft towards a road, jettisoned the insecticide and attempted to determine the cause of the power loss. In order to avoid traffic in the selected landing area, the pilot decided to divert at the last moment to an adjacent field. In the final seconds of the approach, while the pilot manoeuvred to avoid houses, the aircraft contacted tree-tops and stalled. The right wing struck the ground first, and the aircraft cartwheeled tearing the engine free. The aircraft came to rest in an upright position.

The investigation revealed that the throttle linkage had become disconnected during flight, causing the engine to operate at idle speed only. Two days prior to the accident, under difficult lighting and working conditions, the throttle linkage assembly had been disconnected in order to change the starter unit.

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06/08/86

One of the attachment bolts connecting the throttle linkage was missing prior to impact. The evidence indicates that the bolt and nut system had not been refastened in accordance with accepted maintenance procedures, causing the nut to back off due to vibration. The investigation further determined that the nut of another linkage bolt on the throttle linkage had not been torqued the required amount and that the bolt and nut system used on this aircraft did not meet applicable Federal Aviation Administration (FAA) design specifications.

The following laboratory report was completed: LP 131/85 - Throttle Control Linkage.

FINDINGS:

Cause Related:

1. A throttle linkage became disconnected in flight causing engine rpm to reduce to idle.

2. The throttle linkage had not been fastened in accordance with accepted maintenance procedures when maintenance work was carried out under difficult working conditions.

Other:

1. The throttle linkage fastening system was not designed according to FAA specifications.

06/08/86

KANATA AVIATION LTD.
GRUMMAN AGCAT G164A C-GRPV
ST. ANDRE, NEW BRUNSWICK
11 JULY 1985

REPORT NUMBER: 85-A50018 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 0800 ADT
OPERATION: Specialty Aerial Application and Distribution
DAMAGE: Destroyed
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	3,000	600
LAST 90 DAYS	20	20

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aerial spray aircraft was operating from a graded farm road. During the take-off roll, the right main wheel contacted soft earth at the edge of the road. The pilot applied left rudder and brake in an attempt to regain firm ground; however, the tire dug in, and the aircraft flipped onto its back.

The road from which the pilot was operating had been widened by cutting back grain growing on the shoulders. The night before the accident, it had rained heavily, leaving the shoulders of the road soft. In the morning, when the pilot drove a truck up and down the gravel road to check the take-off area, he did not feel or see any soft spot; however, he did not inspect the shoulders of the road. During the take-off roll when the right wheel contacted the soft ground, the pilot applied left rudder and brake; however, the application was too late to bring the aircraft back onto the firm road, and the tire dug in sufficiently to flip the aircraft over.

.../2

06/08/86

FINDINGS:

Cause related:

1. The shoulders of the gravel road used for aircraft operations were soft due to heavy rain.
2. The condition of the shoulders was not noticed during the pre-take-off inspection of the road.
3. During the take-off roll, the right wheel dug into a soft spot.
4. The application of left rudder and brake was too late to bring the aircraft onto the firm road, and the aircraft's right wheel dug into the ground sufficiently to flip the aircraft over.

Other:

-Nil-

06/08/86

CESSNA 170B C-FGZP
DE WINTON/HIGHWOOD, ALBERTA
01 JULY 1984

REPORT NUMBER: 84-W40040 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1355 MDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	200	60
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft returned to De Winton/Highwood airstrip after a two hour cross-country flight. The wind was from 250 degrees magnetic at 15 kt, 90 degrees to the runway. Two unsuccessful approaches were conducted to runway 34. The pilot then elected to try an approach to runway 16. This approach is lined with trees to the west. During the final stages of the approach, full power was applied to overshoot; the aircraft drifted to the left of the runway and struck higher ground.

As no weather information was available from the airstrip, the pilot had to estimate the wind direction and speed from the windsock.

The approach was conducted using 20 degrees of flap. The power off stall speed at maximum gross weight for this configuration is 50 kt. According to the Aeronautical Information Publication, the maximum recommended cross-wind component for light aircraft is 20 per cent of the aircraft's stall speed. Based on this information, the limitation for the aircraft is 10 kt at 90 degrees.

.../2

19/09/85

FINDINGS:

Cause related:

1. Directional control was not maintained during the overshoot.

2. Surface winds exceeded recommended cross-wind limits for light aircraft.

Other:

-- Nil --

19/09/85

CESSNA 172G CF-UQZ
RESERVOIR GOUIN, QUEBEC
6 JULY 1984

REPORT NUMBER: 84-Q40040 (Accident)
LOCAL TIME: 12h45 EDT
OPERATION: Private Recreation
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	110	110
LAST 90 DAYS	12	12

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	1	1

SUMMARY REPORT:

During the take-off roll from a private airstrip the aircraft became airborne at a low indicated airspeed. The low-time pilot decided to land straight ahead as he was concerned that the aircraft would not remain airborne under 60 MPH. He partially reduced power and touched down with only 400 feet of runway remaining. Realizing that there was insufficient runway to complete the landing roll, he applied partial power for take-off. Again the aircraft became airborne at a low indicated airspeed. Fearing an uncontrolled stall the pilot intentionally stalled the aircraft 500 feet beyond the end of the runway.

The pilot did not reduce power enough to land the aircraft with a suitable runway distance ahead of him. On climb-out full power was not used and low airspeed resulted. It was the pilot's understanding that at this reduced airspeed a stall was imminent.

FINDINGS:

Cause Related

1. The pilot had limited experience.

2. Insufficient runway remained when the aircraft touched down.

3. Full power was not used for take-off after the aircraft touched down.

4. The aircraft was intentionally stalled into the trees.

Other

DATE: 09/05/85

- Nil -

PIPER PA28-140 CF-CBX
SEDLEY, SASKATCHEWAN
07 JULY 1984

REPORT NUMBER: 84-C40046 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 2040 CDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	92	23
LAST 90 DAYS	10	9

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The aircraft, which was on final approach to a grass-dirt strip, hit the ground in a nose-low, wings-level attitude On contact, the nose gear assembly failed.

The approach path to the 2000 ft private runway is crossed by a power line. The airspeed was not maintained while flying over the power line. As a result, immediately prior to landing, the aircraft stalled and hit the ground.

FINDINGS:

Cause Related:

1. On the final approach, sufficient airspeed was not maintained to sustain flight.

Other:

-- Nil --

19/09/85

NORTH AMERICAN P-51D C-FBAU
MASSEY, ONTARIO 4 mi SE
07 JULY 1984

REPORT NUMBER: 84-040035 (Accident)
LOCAL TIME: 1230 EDT
OPERATION: Private Recreational
DAMAGE: Destroyed
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	3,200	180
LAST 90 DAYS	32	20

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-		1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot and passenger were on a cross-country flight from Sault Ste Marie, Michigan to Hamilton, Ontario. While in cruise, the engine (Packard Merlin V1650-7) began to run rough and then stopped. A forced landing was attempted on a narrow dirt road. The pilot had difficulty in keeping the aircraft on the road because his forward view was obstructed by the large engine cowling. During the landing roll, the right wing struck fence posts and a nearby farm building. The aircraft then swerved into the building, and the building collapsed. The pilot and passenger escaped quickly and fire erupted immediately, destroying both the aircraft and the building.

Although the engine was heavily damaged by fire, an examination revealed that a portion of the number 3 connecting rod was protruding through the crankcase. A disassembly of the engine further revealed that the crankshaft was fractured through the web between the number 4 main bearing journal and the number 3 crankpin journal. Laboratory examination revealed a fracture pattern indicative of fatigue cracking which originated in the fillet of the number 4 main bearing journal and which led to the rupture of the crankshaft. Fatigue initiation could not be related to any specific stress concentration or material factor.

The engine had just been top-overhauled; the right and left head and bank assemblies, complete with valves and cam rack assemblies were overhauled. Also installed were reconditioned pistons and rods because small chunks of silver metal had been found on the front sump screen. Damage to the number one blade rod bearing indicated that this metal came from this bearing.

The following laboratory reports were completed: LP 244/84 - Crankshaft Failure, LP 254/84 - Oil Analysis.

.../2

22/04/86

FINDINGS:

Cause Related:

1. The engine failed because the crankshaft ruptured as a result of fatigue in the fillet of the number 4 main bearing journal.

2. The failure of the number 3 connecting rod was secondary to the crankshaft failure.

3. During the forced landing on the narrow road, the pilot's forward view of the road was obstructed by the engine cowling.

4. The aircraft left the road and the right wing struck fence posts and a building.

5. The aircraft and the building were destroyed by fire.

Other:

- Nil -

22/04/86

CESSNA 172 M CF-BOE
ERIN, ONTARIO 3MI SSW
8 JULY 1984

REPORT NUMBER: 84-040036 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 0945 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1000	500
LAST 90 DAYS	15	8

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

The pilot was making a local sightseeing flight at 1200 ft AGL when the engine began to run roughly. Unable to restore cruise power he elected to land downwind at a nearby private grass airstrip. Following a steep, fast approach the aircraft touched down, overran the landing area and struck a fence in the middle of an adjacent cornfield.

The partial loss of engine power had been caused by lead which had fouled the lower spark plugs. As low altitude did not permit an approach to the field into wind, the pilot chose a downwind landing. The tailwind and the fast approach placed the aircraft well down the airstrip on touchdown resulting in an overrun.

FINDINGS

Cause Related

1. The engine lost power due to lead-fouled lower spark plugs.

2. The landing on a grass strip was carried out with a tailwind component.

3. The approach path was steep and fast.

4. The aircraft overran the end of the airstrip and struck a fence.

Other

- Nil -

19/9/85

CESSNA 140 CF-ULJ
KESWICK, ONTARIO 5 mi E
08 JULY 1984

REPORT NUMBER: 84-040038 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1832 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	194	40
LAST 90 DAYS	2	2

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

Shortly after lift-off, the engine (Continental C85-12) lost power. The pilot closed the throttle, shut off the magnetos, and landed straight ahead. The aircraft could not be stopped on the remaining runway, and it continued across a ditch, coming to rest in some brush.

The rpm drop described by the pilot could have been caused by a variety of malfunctions. Two of the more common causes of rpm drops are fuel contamination and carburettor icing. During the investigation, the fuel was not checked for contaminants because the aircraft had been moved, and the fuel system disturbed before the accident was reported.

The pre-take-off run-up and rpm checks were within the prescribed limits. After the run-up, the pilot delayed his take-off for several minutes. At take-off, the temperature was 20 degrees Celsius, and the dew point was 8 degrees Celsius. These factors place the carburettor into the moderate icing range. Although carburettor icing is more prevalent at low power settings, it will occur at high power settings. The delay between the pilot's run-up check and the take-off roll could have helped set the conditions for carburettor icing before the application of full power. The reason for the power loss could not be positively determined.

.../2

18/12/85

FINDINGS:

Cause Related:

1. Just after take-off, the engine rpm dropped significantly.
2. The reason for the power loss could not be determined.
3. The pilot could not stop the aircraft on the runway remaining after touchdown.
4. The overrun area was obstructed by a ditch and brush.

Other:

-- Nil --

18/12/85

CESSNA 210A N3ME
TSUNIAH LAKE, BRITISH COLUMBIA
11 JULY 1984

REPORT NUMBER: 84-P40902 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1930 PDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private (U.S.A.)

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	9,000	3,000
LAST 90 DAYS	24	24

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

Following a flight from his home in the northwestern United States, the pilot approached a turf and gravel airstrip at a local fishing lodge. During the landing roll, the nosewheel dropped into a pot-hole and broke off. The aircraft nose dropped, and the aircraft overturned.

The pilot had been flying into this airstrip for the past 15 years and was aware that the runway was rough.

FINDINGS:

Cause Related:

1. The aerodrome was rough and contained pot-holes.

2. The pot-hole in the runway was not seen when the aircraft touched down.

Other:

-- Nil --

21/11/85

PIPER PA-28 N2167B
PASQUIA HILLS, SASKATCHEWAN
14 JULY 1984

REPORT NUMBER: 84-C40909 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1247 CDT
OPERATION: Private Recreational
DAMAGE: Destroyed
PILOT LICENCE: Private (USA)

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	530	50
LAST 90 DAYS	20	20

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	2	-	-

SUMMARY REPORT:

The aircraft was on a visual flight rules (VFR) flight from Thompson, Manitoba to Saskatoon, Saskatchewan. It was last observed heading southwest from The Pas, Manitoba at a reported altitude of 1,800 feet above sea level (asl), just below the cloud base. After The Pas, there were no further communications from the pilot, and when the aircraft failed to arrive at Saskatoon, a search was initiated. The wreckage was located two days later in the Pasquia Hills, 45 miles southwest of The Pas.

The investigation revealed that the pilot was fit and qualified for the flight and that the aircraft was properly maintained and had no known defects. The aircraft struck the ground in a treed area at 1,825 feet asl. It was heading in a westerly direction in level flight, and the engine was developing power at the time of the crash. Impact forces crushed the cabin, killing all three occupants instantly and destroying the emergency locator transmitter (ELT). Witnesses, who were near the crash site at the estimated time of the accident, observed cloud bases at tree-top level.

During his pre-flight planning in Thompson, the pilot received an extensive en-route weather forecast from the flight service specialist. He filed a flight plan to Saskatoon via La Ronge and Prince Albert, a satisfactory VFR route which would have avoided an area of poorer weather to the south. The area forecast called for ceilings as low as 300 to 1,200 feet above ground in upslope conditions near the Manitoba-Saskatchewan border; there was also a possibility of isolated thunderstorms.

.../2

Shortly after take-off, the pilot amended his flight plan to proceed to Prince Albert via The Pas instead of via La Ronge. En-route to The Pas, the pilot encountered lowering ceilings and indicated to the flight service station (FSS) at The Pas that he was considering landing to review the weather. When the FSS reported improving conditions west of The Pas (the direction to Prince Albert), the pilot decided to continue the flight. The location of the crash site and the pilot's navigation charts suggest that he had planned to proceed direct from The Pas to Saskatoon instead of turning west towards Prince Albert. This direct southwesterly route took him towards rising terrain and poorer upslope weather conditions.

The small scale chart by which the pilot was navigating lacked detail on terrain elevation. There are indications that the pilot continued along his route just below the cloud base without realizing that he was flying towards higher terrain. The combination of a small navigation error and possible reduced visibility in precipitation would account for the apparently controlled flight into the ground.

FINDINGS:

Cause Related:

1. Once airborne, the pilot selected a route very different from the one originally flight-planned.

2. The pilot was using a small scale chart which did not have adequate detail for navigation.

3. The aircraft struck higher terrain while visual flight was attempted in deteriorating weather.

Other Findings:

1. The ELT was demolished by crash forces and failed to function.

28/05/86

BEECH 23 C-FOYL
WATERLOO-WELLINGTON AIRPORT, ONTARIO, 2.3 mi SW
14 JULY 1984

REPORT NUMBER: 84-040039 (Accident)
LOCAL TIME: 1348 EDT
OPERATION: Private Recreational
DAMAGE: Destroyed
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	500	450
LAST 90 DAYS	4	4

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	2	1

SUMMARY REPORT:

With 15 degrees of flaps selected and the aircraft at approximately the maximum take-off weight, the pilot took off at 65 mph from an airport situated 1,030 feet above sea level. The ambient temperature was 29 degrees Celsius. Once airborne, the pilot raised the flaps and maintained a height of 100 feet above ground level as he could not increase the airspeed or the altitude. Shortly after take-off, the aircraft approached rising terrain. The airspeed was decreasing, and the pilot decided to stall the aircraft onto a field.

The investigation revealed that the density altitude was 2,700 feet, that the take-off speed for this weight should be 75 mph, and that flaps should not be used for take-off. The technical investigation revealed that there was no indication of engine malfunction.

The aircraft's take-off and climb performance was reduced by the combination of a high density altitude, a high gross weight, the use of flaps, and a low take-off speed. After the flaps were raised, the aircraft was kept in a nose-high attitude, further reducing the aircraft climb capability. When the pilot was confronted with the rising terrain and a decaying airspeed, he stalled the aircraft onto a field.

.../2

18/03/86

FINDINGS:

Cause Related:

1. The high density altitude combined with a high gross weight, a low take-off speed, and retraction of the flaps resulted in a marginal climb capability.
2. Contrary to the manufacturer's instructions, flaps were used for take-off.
3. The aircraft climb capability was insufficient to clear the rising terrain.
4. The pilot stalled the aircraft onto a field.

Other:

-- Nil --

18/03/86

CESSNA 172F CF-FCD
EUTSUK LAKE, BRITISH COLUMBIA
15 JULY 1984

REPORT NUMBER: 84-P40030 (Accident)
LOCAL TIME: 1245 PDT
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	350	10
LAST 90 DAYS	10	5

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

While in cruise, the pilot diverted to an emergency bush strip because of a rough running engine (Continental 0-300-D) and fluctuating rpm. He selected carburettor heat after which the engine returned to normal, but the rpm continued to fluctuate. The pilot reported that there was moderate turbulence. When he arrived at the bush strip, the engine condition had improved, but full power was not available (the maximum power available was 2300 rpm). A circuit was completed and the approach was made at 75 mph with 20 degrees of flap. On final, the pilot selected 30 degrees of flap, and the aircraft touched down 1,700 feet past the threshold. The airspeed was between 70 and 75 mph, which was about 15 mph higher than the normal touchdown speed. The aircraft bounced twice and landed heavily on the third touchdown. The nose gear collapsed, and the aircraft nosed over.

A witness in the immediate vicinity reported that the sky was clear, the visibility was good and that the wind was light with occasional gusts. The strip is 2,500 feet long by 150 feet wide and is completely surrounded by tall trees.

The evidence suggests that the rough running engine was caused by carburettor icing. The approach to the bush strip was rushed and as a result the approach speed was too fast. After landing long and bouncing with only a few hundred feet of runway remaining, the pilot made a positive effort to keep the aircraft on the ground. The result was a hard touchdown and a collapsed nose gear.

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18/03/86

FINDINGS:

Cause Related:

1. The engine ran rough because of carburettor icing.
2. The airspeed on the approach and at touchdown was higher than normal during the landing at the emergency strip.
3. The higher airspeed resulted in the aircraft touching down 1,700 feet past the threshold.
4. The nose gear failed as a result of a hard touchdown following a bounced landing.

Other Findings:

- Nil -

18/03/86

VIKING OILFIELD LTD.
CESSNA 206G C-GTUG
BEATON RIVER, BRITISH COLUMBIA 20 mi E
18 JULY 1984

REPORT NUMBER: 84-W40047 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1620 MDT
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,004	150
LAST 90 DAYS	100	40

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

During cruise at a power setting of 2,300 rpm and 23 in manifold pressure, the engine (Continental IO-520-F) began to run rough. As the pilot was able to obtain only partial power, even after completing emergency checks, he attempted a forced landing on a winter muskeg strip. On landing, the nose wheel sank into the soft ground; the aircraft nosed over and came to rest in an inverted position.

Following the accident, engine test runs were carried out. The tests revealed that the engine ran rough at cruise power settings after approximately 20 minutes; however it would still produce full power. It was determined that number 4 and 6 cylinder faces had been damaged by foreign material. The top spark plug in cylinder 4 and both plugs from number 6 cylinder had their contacts damaged, which caused them to short out. One complete nut and screw assembly from the induction air box was missing and it is likely that this object caused the damage.

Another problem discovered during the investigation was a bent mounting bracket for the fuel injection microswitch and throttle support. This problem caused a restriction to throttle movement at the 60 per cent power position; however, the throttle could be forced to the full-open position. The bent bracket also contributed to an overrich fuel scheduling because the fuel injection microswitch was not responding correctly with the throttle position. Because of the lack of damage near the bracket, it was felt that the bending was not a result of the noseover. The bent bracket was not detected during aircraft maintenance.

.../2

19/09/85

Any of the engine problems that were found could have been responsible for only partial power being produced by the engine. The engine had accumulated 40 flight hours since installation.

FINDINGS:

Cause Related:

1. The spark plugs were damaged when a nut and screw assembly from the induction box likely entered the engine cylinders.
2. An overrich fuel mixture resulted from a bent microswitch mounting bracket.
3. The bent bracket was not detected during previous maintenance.

Other:

-- Nil --

19/09/85

CESSNA 210N C-GILO
SHUSWAP LAKE ESTATES, BRITISH COLUMBIA
20 JULY 1984

REPORT NUMBER: 84-P40034 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1215 PDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	3,000	Unknown
LAST 90 DAYS	14	14

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The aircraft was on a pleasure flight to Shuswap Lake Estates. The pilot was unfamiliar with the area so on arrival he circled the airstrip three times. He determined that there was no wind and carried out a low circuit to position for runway 13. The aircraft landed two-thirds of the way down the airstrip. Heavy braking was applied but the aircraft overran the runway and came to rest against trees.

The Shuswap Lake airstrip is 2,000 feet long at an elevation of 1,500 feet above sea level. The approach to runway 13 is unobstructed but the overrun slopes down into high trees. At the time of the occurrence, the grass strip was dry, and the temperature was 22 degrees Celsius. The approach was reportedly flown at 68 knots indicated airspeed with 37 degrees of flaps selected. By the time the pilot realized that he would not be able to stop the aircraft, there was insufficient runway remaining for a go-around to be attempted.

Given the prevailing conditions, a safe landing should have been possible. Even allowing for the grass surface, the aircraft only required half the runway length on which to stop. Because the final touchdown did not occur until two-thirds of the way down the runway, there was insufficient runway remaining on which to stop the aircraft.

.../2

FINDINGS:

Cause Related:

1. The pilot was unfamiliar with the landing strip.
2. The landing occurred well beyond the planned point.
3. By the time the pilot realized that he would not be able to stop the aircraft, there was insufficient runway remaining for a go-around to be attempted.

Other:

- Nil -

21/11/85

PIPER PA 32 RT-300 N2113V
KASBA LAKE, NORTHWEST TERRITORIES
21 JULY 1984

REPORT NUMBER: 84-C40910 (Accident)
LOCAL TIME: 1300 CDT
OPERATION: Pleasure
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	5,800	1,931
LAST 90 DAYS	87	87

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	5

SUMMARY REPORT:

The heavily loaded aircraft was departing from a rain-soaked gravel runway which was 4,000 feet long and 100 feet wide and bordered by trees and other obstructions. A right cross-wind of 10 to 15 kt was blowing across the runway at about a 70-degree angle. The aircraft became airborne prematurely at too low an airspeed and drifted left toward the edge of the runway. As the pilot attempted to turn right to stay within the bounds of the runway, the aircraft dropped from 15 ft and bounced hard on the runway surface. On the next touchdown, the left main wheel hit the loose gravel on the left shoulder of the runway. The aircraft continued off the left side of the runway; the left wing and left main landing gear were torn off when the aircraft struck large rocks.

In the attempt to keep the aircraft over the runway, right aileron and right rudder were used. Near the stall speed, directional and altitude control could not be maintained.

FINDINGS:

Cause Related:

1. The aircraft was allowed to become airborne at too low an airspeed.
2. Aircraft control could not be maintained, and the aircraft bounced hard on the runway.
3. Following the bounced landing, the left wheel hit the shoulder of the runway, and the aircraft swerved left and struck rocks.

Other:

- Nil -

19/09/85

PIPER PA-28-140, C-FSNU
SHELBURNE, ONTARIO
22 JULY 1984

REPORT NUMBER: 84-040045 (Accident)
LOCAL TIME: 1245 EDT
OPERATION: Private Training
DAMAGE: Substantial
PILOT LICENCE: Student

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	120	25
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The solo student pilot was completing his second circuit to a touch-and-go landing on a grass runway. During the landing roll-out directional control was lost. The aircraft veered left off the prepared runway surface and struck a boulder.

For unknown reasons the left main tire had become flat, causing the aircraft to veer left on the landing roll. In this situation, the pilot's control inputs were ineffective in maintaining directional control.

FINDINGS:

Cause Related:

1. A flat left tire caused the aircraft to veer to the left.

2. The pilot's control inputs were ineffective in maintaining directional control with the left tire flat.

Other:

- Nil -

19/09/85

CESSNA 150 CF-DBR
FORGET, SASKATCHEWAN
28 JULY 1984

REPORT NUMBER: 84-C40058 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1940 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,300	1,100
LAST 90 DAYS	20	20

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	-	-

SUMMARY REPORT:

The flight took off from a private farm strip for a local pleasure flight. Immediately after take-off, the aircraft encountered a "dust devil". The right wing was lifted almost vertically, and the aircraft veered sharply to the left in a dive toward a fuel tank. The pilot regained control and turned the aircraft to fly between the fuel tank and a stand of trees. The aircraft struck a wire running between a workshop and a hangar and was pulled to the ground. It then hit a truck and came to rest in a hedge.

The pilot reported entering the "dust devil" just after take-off at an altitude of 25 feet and a speed of 80 mph. A "dust devil" indicates the presence of windshear. Low altitude and obstacles hampered recovery attempts.

FINDINGS:

Cause Related:

1. Aircraft control was lost during an encounter with windshear.

Other:

- Nil -

02/04/86

CESSNA 182E CF-KMO
REGINA, SASKATCHEWAN
30 JULY 1984

REPORT NUMBER: 84-C40059 (Accident)
LOCAL TIME: 0950 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	897	362
LAST 90 DAYS	25	25

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

During the landing as the nosewheel touched down, the aircraft swerved to the left, and the nose gear collapsed. The aircraft skidded to a stop down the runway on the lower cowling and main landing gear.

The pilot had taken off from a grass strip at the airport rather than using an asphalt runway. The strip was rough due to cracks in the clay soil which was a result of the extremely dry conditions. After lift-off, the aircraft tended to fly right-wing-low or veer left when the wings were level. The pilot elected to continue his flight to destination but turned back when he encountered unfavourable weather conditions.

An examination of the nose gear revealed that the gear scissors failed during take-off and jammed the nosewheel to the left. This condition caused the unusual flying characteristics after lift-off and the collapse of the nose gear after touchdown. It is likely that the rough condition of the strip contributed to the overload failure of the nose gear scissors.

The pilot took off shortly after a DHC-6 Twin Otter successfully departed from the strip. This may have influenced the pilot in his decision to use the grass strip; however, the smaller wheels of a Cessna 182 are not capable of withstanding the same surface roughness.

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19/9/85

FINDINGS

Cause Related:

1. The surface of the grass strip was rough resulting in an overload failure of the nose gear scissors during take-off.
2. The nosewheel was jammed to the left which caused the nose gear to collapse after touchdown.

Other:

-- Nil --

19/09/85

CESSNA 150J CF-HLJ
LITTLE BEAR LAKE, SASKATCHEWAN
02 AUGUST 1984

REPORT NUMBER: 84-C40060 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 2030 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	15,000	15
LAST 90 DAYS	10	5

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

On arrival at the airstrip, the pilot completed a low pass along the runway to check its condition. He then climbed to an elevation of about 100 feet above ground level (agl) and commenced a left turn, reversing the turn to the right to line up for the final approach. The approach was into the sun, and the visibility was reduced by smoke and haze. The pilot momentarily lost visual contact with the runway, and the aircraft touched down well beyond the threshold at a higher than normal speed. It continued off the end of the runway into a gully covered with bushes.

The pilot did not fly a full circuit after completing the fly-past. As the turn on to final was conducted at 100 feet agl, the pilot had little time to stabilize the aircraft on the approach. When he lost visual contact with the runway, he did not carry out a go-around. Because of the position and speed of the aircraft on touchdown, the pilot was unable to stop the aircraft in the available distance.

FINDINGS:

Cause Related:

1. The aircraft was not stabilized on a normal approach path.

2. The approach was into the sun, and the visibility was reduced by smoke and haze.

3. A go-around was not initiated when visual contact with the runway was lost.

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4. The aircraft touched down beyond the normal touchdown point with a higher than normal airspeed.

5. The aircraft was damaged when it encountered a gully at the end of the runway.

Other:

-Nil-

21/11/85

GESTION COLIBRI INC.
CESSNA A-185F C-FFVS
ST. JEAN AIRPORT, QUEBEC
2 AUGUST 1984

REPORT NUMBER: 84-Q40053 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1541 EDT
OPERATION: Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	245	20
LAST 90 DAYS	45	20

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

After conducting a full visual approach, the pilot landed the tail-wheel equipped aircraft in calm wind conditions. The aircraft bounced and then settled on the runway with the nose slightly to the left. As the aircraft moved towards the edge of the runway, the pilot applied full power and full right brake. The aircraft continued on to a grass-covered area where the main right gear was ripped off. The aircraft fell on to the right wing and came to a stop.

When the aircraft settled on the runway, it started into a ground loop. The corrective actions taken by the pilot, who had little tail-wheel experience, were not sufficient to maintain directional control. The tendency to ground loop was increased when full power was applied.

FINDINGS:

Cause Related:

1. The pilot had little experience with tail wheel aircraft.

2. Directional control of the aircraft was not maintained.

3. The aircraft ground looped.

4. The pilot's corrective actions worsened the ground loop.

Other:

- Nil -

06/08/86

STINSON 108 C-FEXK
THUNDER BAY, ONTARIO
3 AUGUST 1984

REPORT NUMBER: 84-C40061 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1233 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	150	45
LAST 90 DAYS	30	30

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

During the landing roll on a dry asphalt runway, in calm wind conditions, directional control was lost. The tail wheel-equipped aircraft veered to the right, left the runway, and ground looped on the grass damaging the left wing tip. The pilot reported that the tail wheel had jammed causing the loss of directional control.

FINDINGS:

Cause Related:

1. Directional control was lost during the landing roll.

Other:

-- Nil --

19/09/85

CESSNA 172M C-GXQF
CLIMAX, SASKATCHEWAN
4 AUGUST 1984

REPORT NUMBER: 84-C40065 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 0700 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,100	1,027
LAST 90 DAYS	75	75

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft took off from a rough area and was airborne after a ground roll of under 400 ft. It flew an additional 300 ft before it mushed into a grain field and nosed over.

Because of a recent rainstorm, the taxiway between the hangar area and the prepared airstrip was soft and muddy, so the pilot decided to take off from an unprepared area near the hanger. This area had limited take-off distance available and was bounded by a sloping grain field. Since the aircraft was airborne in under 400 ft, it is likely that the aircraft took off at a low airspeed and a high angle of attack. This high angle of attack produced sufficient drag to prevent the aircraft from accelerating or climbing.

FINDINGS:

Cause Related:

1. The area selected for take-off was unsuitable.

2. The aircraft became airborne at a low airspeed and high angle of attack.

Other:

-- Nil --

10/12/85

BEECH 23 CF-CLI
CORONACH, SASKATCHEWAN
05 AUGUST 1984

REPORT NUMBER: 84-C40066 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1332 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	218	160
LAST 90 DAYS	50	50

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	4

SUMMARY REPORT:

When taking-off from a municipal airstrip, the pilot lifted off after a ground roll of about 1,800 feet at 70 mph and climbed steeply to 70 feet. The aircraft then began to descend in a nose-high attitude. A left turn was initiated to avoid some buildings, and the aircraft mushed on to the ground, one-quarter mile beyond the end of the airstrip. The main landing gear was torn off. Two children, ages 12 and 14, occupied one passenger seat and were restrained by a single seat-belt.

The take-off area was dry, rough-textured dirt strip with patches of vegetation 7 to 10 inches high. The elevation of the strip is 2,571 feet above sea level and its length is 2,375 feet. There was no wind and the temperature was 35 degrees Celsius. The combination of elevation and temperature resulted in a density altitude of 5,500 feet. The pilot handbook provides take-off performance data for hard-surface runways only. The rough surface of this airstrip would increase the take-off distance required by about 10 per cent. Considering these factors, the aircraft required about 1,600 feet for take-off.

The recommended lift-off speed is 75 mph; however, the aircraft was lifted off the runway at 70 mph. Before climbing, the aircraft should have been accelerated just above the ground until the climb speed was attained. The premature lift-off together with the steep climb under high density-altitude conditions prevented the aircraft from maintaining an airspeed sufficient to sustain flight.

18/03/86

FINDINGS:

Cause Related:

1. The high density altitude degraded the aircraft's performance.

2. The aircraft was lifted off the runway prematurely.

3. A climb was initiated before adequate climb speed was attained resulting in a stall.

Other:

1. Two occupants shared a single seat and seat-belt.

18/03/86

PIPER PA-30 C-FUSF
LESTER B. PEARSON INTERNATIONAL AIRPORT, ONTARIO
05 AUGUST 1984

REPORT NUMBER: 84-040051 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 2231 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Senior Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2,500	150
LAST 90 DAYS	21	21

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The aircraft was flown from Toronto Island Airport to Muskoka Airport on a pleasure trip. After landing the pilot decided to change the landing gear indicator light and lens. To facilitate the installation, the pilot placed the landing gear selector in the "up" position. When the work was completed, the selector was left in the "up" position.

The following day, with the selector still in the "up" position, the left main landing gear began to retract during lift-off. The pilot immediately placed the gear selector in the "down" position. The take-off was successful but the landing gear indicator did not indicate that the gear was down and locked. The gear selector was cycled several times, but the gear remained in the down position. The circuit breaker of the landing gear drive motor tripped on every selection.

The aircraft proceeded to Toronto Island Airport with the gear down. Approaching the airport, an emergency landing gear extension was completed, but a positive "down" indication could not be obtained. When a touch-and-go landing was attempted, the left wing started to settle, so a go-around was carried out. The tower then recommended that the flight divert to Lester B. Pearson International Airport. Two low passes were flown, and it was confirmed that the left main landing gear was not locked down. A precautionary landing was carried out, and the landing gear collapsed as the aircraft settled on to the runway.

.../2

3/10/85

The analysis showed that on the take-off roll, when the aircraft became light on the wheels, the left main landing gear started to retract. As the left wing lowered, the weight of the aircraft bearing on the landing gear retract rods caused the rods to buckle and bend. The pilot, recognizing the problem, immediately placed the landing gear selector in the "down" position. However, it was too late as the retract rods had been damaged. As a result, the bent retract rods prevented the landing gear from being fully extended or retracted. Since the retract rods are common to both the normal and emergency landing gear extension systems, it was mechanically impossible to lower the landing gear and get a down and locked indication.

FINDINGS:

Cause Related:

1. During repairs, the landing gear selector had been placed in the "up" position by the pilot and was not reselected to the "down" position when the work was completed.
2. When the aircraft commenced the take-off roll, the landing gear selector was still in the "up" position.
3. The landing gear retract rods were damaged when the left main landing gear retracted prematurely on take-off.
4. The landing gear collapsed on landing because the damaged retract rods prevented full landing gear extension.

Other:

-- Nil --

3/10/85

MAULE M5-210C C-GWGQ
SYLVAN LAKE ALBERTA
05 AUGUST 1984

REPORT NUMBER: 84-W40055 (Accident)
LOCAL TIME: 1725 MDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	327	245
LAST 90 DAYS	19	19

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	1	-	-

SUMMARY REPORT:

The aircraft descended over several boats located on Sylvan Lake and carried out numerous turns and manoeuvres at low altitude. During one of these manoeuvres, the main landing gear and left wing struck the surface, and the aircraft sank in 25 feet of water. The occupants of the aircraft were fatally injured during the impact.

The pilot and his passenger had spent the afternoon watching a local air display. Following the display, they took off for a flight home which would have taken twenty minutes, had they flown there direct. The accident occurred 1 hour and 30 minutes after take-off.

Sylvan Lake is located six miles from the direct track to the aircraft's destination. The weather was clear with bright sunlight; the temperature was 17 degrees Celsius, and there was no wind. The lake's surface was smooth and glassy.

Examination of the wreckage did not reveal any pre-accident mechanical problems. Witness accounts differed as to the exact manoeuvres performed by the aircraft prior to the accident, but there is no doubt that the aircraft was carrying out aerobatic manoeuvres at low altitude over a surface from which it was difficult to assess height. The glassy surface of the lake likely resulted in the manoeuvres being flown at a lower altitude than the pilot intended.

FINDINGS:

Cause related:

1. The aircraft was carrying out aerobatic manoeuvres at low altitude over glassy water.

2. The glassy water conditions made it difficult to judge altitude.

Other:

- Nil -

18/03/86

CESSNA 172E C-GWZW
FORT MCMURRAY, ALBERTA
06 AUGUST 1984

REPORT NUMBER: 84-W40056 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1400 MDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	230	100
LAST 90 DAYS	50	50

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The aircraft was on a return flight to Fort McMurray following a two-day trip to Athabaska. On approach for a landing, the engine suddenly lost power. The pilot carried out a forced landing, and the aircraft touched down about 1 mile short of the runway. After a brief ground roll in the soft ground, the aircraft nosed over on to its back.

The aircraft has a total fuel capacity of 39 U.S. gallons of which 36 gallons are considered usable. The fuel tanks were full when the aircraft departed from Fort McMurray. The trip included two local flights at Athabaska with the fuel mixture in the full rich position. It was calculated during the investigation that to this point the aircraft had consumed 23.4 gallons of fuel. As the pilot did not refuel the aircraft before departing on the return flight to Fort McMurray, the fuel tanks contained only about 12.6 gallons of usable fuel. The remaining fuel was consumed on the return flight, and as a result, fuel exhaustion occurred.

Because a sign attached to the fuel pump Athabaska airport read "Use at your own risk", the pilot decided not to refuel his aircraft there.

The pilot calculated that the aircraft had a flight endurance of 4 hours and 45 minutes. This calculation was based on the faulty assumption that the aircraft's usable fuel capacity was 39 gallons. In addition, it appears that the pilot did not take into consideration the high rate of fuel consumption during the take-offs and climbs to altitude, and portions of the flight conducted with the mixture in the full rich position, when he calculated the aircraft's endurance. The pilot ran out of fuel after flying about 3 hours and 30 minutes.

.../2

19/09/85

FINDINGS:

Cause Related:

1. The aircraft's flight endurance was incorrectly determined.

2. The engine lost power as a result of fuel exhaustion.

3. The soft ground in the landing area caused the aircraft to nose over.

Other:

-- Nil --

19/09/85

CESSNA 172M C-GIJW
COURTENAY AIRPARK, BRITISH COLUMBIA
10 AUGUST 1984

REPORT NUMBER: 84-P40043 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1230 PDT
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	85	42
LAST 90 DAYS	30	30

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft was on final approach to land on a 2230-foot grass/gravel airstrip. With full flaps extended, the aircraft floated down the airstrip a considerable distance past the threshold. No attempt to overshoot was made and after landing the pilot braked heavily but did not retract the flaps. The aircraft slid to the end of the runway where the propeller and nosewheel struck a low gravel embankment.

The investigation revealed that the pilot had obtained the wind conditions for an aerodrome four miles away and had assumed that the local airstrip winds would be the same. These winds were reported to be 330 degrees at five to six knots. Based on this wind information, runway 30 was used for landing. The local wind sock at the Courtenay Aerodrome indicated that the winds were from 150 degrees; however, the pilot did not notice the wind sock during the final approach. The aircraft was landed with a tail wind, and as a result, it landed long.

FINDINGS:

Cause Related:

1. The pilot did not determine the wind direction prior to landing.

2. Because the aircraft approach was downwind, the touchdown point was misjudged, and the aircraft landed long.

3. An overshoot was not carried out when it became obvious that the aircraft would land long.

4. The aircraft could not be stopped on the runway remaining and slid into a gravel embankment.

Other:

-Nil-

28/05/86

MAULE M-4 CF-QGC
OSPIKA RIVER, BRITISH COLUMBIA
13 AUGUST 1984

REPORT NUMBER: 84-P40047 (Accident)
LOCAL TIME: 1240 PDT
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	94	44
LAST 90 DAYS	Unknown	Unknown

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot carried out an approach to a 1000-foot airstrip along the Ospika River. Thundershowers were in the area and gusty wind conditions were encountered. The aircraft landed short, the right main landing gear was bent and directional control was lost. When the aircraft veered from the runway, the right main gear collapsed, the aircraft ground looped and came to rest on its nose and right wing.

The airstrip was in poor condition and only 600 ft of the runway was usable. Aware of this, the low-time pilot carried out a low angle, power-on approach to land precisely at the beginning of the runway, but did not coordinate power applications with the gusty wind conditions which resulted in the premature touchdown.

FINDINGS:

Cause Related

1. The airstrip was in poor condition with only 600 ft usable.

2. Gusty wind conditions were encountered.

3. Power applications were not coordinated with the wind conditions.

4. The aircraft was landed short of the runway.

Other

- Nil -

19/09/85

PIPER PA 32-300 N75322
SAINT JOHN AIRPORT, SAINT JOHN, NEW BRUNSWICK
16 AUGUST 1984

REPORT NUMBER: 84-A40903 (Accident)
LOCAL TIME: 1533 ADT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial (U.S.A.)

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	806	35
LAST 90 DAYS	35	35

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

The aircraft was on a cross-country flight from Ottawa, Ontario to Saint John, New Brunswick. Approaching Saint John the pilot was cleared for an instrument landing system (ILS) approach to runway 23. The reported weather at this time showed an overcast ceiling of 400 feet above ground level and the visibility was two miles in fog. The approach was normal until the pilot, who was flying from the right seat, allowed the aircraft to drift right of the localizer as he approached minimums. He was about to overshoot when he spotted the control tower and a runway. He then decided to make a left turn and circle to land on that runway. While turning, he transmitted his intentions to the tower. The tower controller advised him that the active runway was runway 23 and that the runway he was heading for was actually runway 32; runway 23 was over to his right. The pilot acknowledged this information and continued on his southeasterly heading. When he crossed the approach path to runway 23, he saw the active runway and attempted a sudden right turn to make a landing. The aircraft, which was then at low altitude, low airspeed and a steep bank angle, stalled over the approach lights and hit the ground just short of the runway end lights. The aircraft slid to a stop on the runway and the occupants exited the aircraft.

The pilot was flying from the right seat as the pilot-in-command. His wife, who is a licensed pilot, occupied the left seat. As there are no instruments on the right side, the pilot was forced to fly instruments "cross-cockpit". The parallax error alone would make aircraft heading control and ILS corrections difficult. In addition the pilot was looking out during the approach which caused a further deterioration of his instrument flying. Meteorological conditions were such that one could see the ground straight down, but there was minimal forward visibility.

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22/04/86

When the pilot finally saw the airport, he was over the control tower which is approximately one-half mile to the right of the localizer. He informed the tower that he was going to circle and land on runway 32. During the circling procedure, he descended to approximately 100 feet above ground level. When he was advised that he was heading for the wrong runway he stayed on a constant heading which brought him over the approach lights to runway 23, the active runway. He abruptly banked the aircraft in an attempt to land and stalled the aircraft just short of the runway.

FINDINGS:

Cause Related:

1. The pilot was flying the aircraft from the right side of the cockpit where there were no flight instruments.
2. The aircraft was not aligned with the runway at minimums.
3. There was no attempt made to initiate an overshoot at minimums.
4. The aircraft stalled at low altitude while in a low-speed runway-aligning turn.

Other:

- Nil -

22/04/86

CESSNA 150F C-GYEY
TEULON, MANITOBA
18 AUGUST 1984

REPORT NUMBER: 84-C40069 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1712 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	300	13
LAST 90 DAYS	3	3

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

Half-way through the take-off run from a narrow dirt airstrip, the pilot decided to reject the take-off. During the roll-out, the aircraft veered left off the prepared surface and entered a rough grassy area adjacent to the runway. The nose gear struck a large stone that was concealed in the grass. The nose gear then collapsed, and the aircraft nosed over.

The pilot rejected the take-off because he felt that the aircraft was not accelerating sufficiently. Reportedly the wind was 80 degrees to the runway heading, at less than 10 kt. Directional control was not maintained during the roll-out.

FINDINGS:

Cause Related:

1. The pilot did not maintain directional control during the roll-out following the rejected take-off, and the aircraft left the prepared take-off area.

2. The nose gear struck a rock and collapsed and the aircraft nosed over.

Other:

- Nil -

10/12/85

TAYLORCRAFT BC12-65 C-GRUY
STEINBACH AIRPORT, MANITOBA
19 AUGUST 1984

REPORT NUMBER: 84-C40071 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1020 CDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	144	41
LAST 90 DAYS	13	13

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

As the aircraft did not have an electric starter, the pilot was hand-swinging the propeller to start the engine. The first attempt was unsuccessful; however, the pilot advanced the throttle and tried again. When the engine started, the aircraft moved forward and broke the rope which tied it to a concrete tie-down block. The pilot attempted to reach the throttle in the moving aircraft, but he was unsuccessful. The unoccupied aircraft travelled in an arc, broke through a section of concrete fence and crashed into a stand of trees.

The tensile strength of the polypropylene rope used to restrain the aircraft should have been adequate. The rope failed because of previous deterioration.

FINDINGS:

Cause Related:

1. Following a hand-swung engine start, the unoccupied aircraft moved forward when the deteriorated restraint rope broke.

Other:

-- Nil --

19/09/85

PIPER PA30 N475CT
REGINA AIRPORT, SASKATCHEWAN
27 AUGUST 1984

REPORT NUMBER: 84-C40911 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1210 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	7,000	200
LAST 90 DAYS	37	34

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The aircraft was on a visual flight rules flight from Pierre, South Dakota to Regina, Saskatchewan. The pilot experienced communication difficulties when he attempted to contact Regina but did obtain clearance for a visual approach to runway 26. No landing clearance was received during the final approach, so an overshoot and another circuit were carried out. During this circuit, the pilot noticed that the landing gear lights, instruments and radio were inoperative and assumed the aircraft had had an electrical failure. As he turned on to final for runway 26, he received a green light signal from the tower and landed. During the landing roll the landing gear collapsed, and the aircraft slid to a stop on the runway.

The investigation revealed that the aircraft's battery was completely dry and the battery terminals were badly corroded. These unserviceabilities prevented the alternator from supplying power to the on-board electrical systems which included the landing gear lowering system. Although the pilot correctly identified the electrical failure, he did not utilize the emergency gear lowering system. He thought the nosewheel appeared to be down when he viewed it through the nacelle mirror.

.../2

FINDINGS:

Cause Related:

1. The dry aircraft battery and the badly corroded terminals resulted in a complete in-flight electrical failure.

2. Because of the electrical failure, the normal landing gear lowering and indicating systems were inoperative.

3. The emergency gear lowering system was not used to obtain a positive downlock of the landing gear.

Other:

-- Nil --

10/12/85

CESSNA 182RG N5307T
D&D CAMP, SASKATCHEWAN
30 AUGUST 1984

REPORT NUMBER: 84-C40912 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1925 CDT
OPERATION: Private Recreational
DAMAGE: Destroyed
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2500	400
LAST 90 DAYS	85	85

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	1	3

SUMMARY REPORT:

The pilot contacted the FSS and received a weather briefing for his intended route. Strong gusty winds were forecast for the area, from 330 deg at 15-30 kts. The airstrip at destination was aligned 05/23, therefore a strong cross-wind condition existed. When advised by camp personnel that the winds seemed to be abating, the pilot decided to attempt the flight. Upon arrival the pilot found the wind sock erect and swinging about erratically. He decided to conduct a left-hand downwind approach to land on runway 23. On short final just above the tree-top level, a strong gust was encountered and the aircraft landed long near the mid point of the runway; then dropped onto the surface, bouncing twice. After the second bounce the pilot attempted to take off and return for another landing. The aircraft became airborne at a low airspeed and began to fly towards the trees that bordered the airstrip. The pilot banked left to avoid the trees; the aircraft then stalled and struck the surface of a lake at the end of the runway. The aircraft cartwheeled across the surface, coming to rest upright in shallow water. The pilot and passengers exited through the open windshield.

Investigation failed to reveal any failure of the engine or flight controls. The pilot's lack of familiarity with the runway and local terrain, combined with unfavourable wind conditions contributed to this accident.

19/09/85

.../2

FINDINGS:

Cause Related:

1. An attempt was made to land the aircraft in a strong and gusty cross-wind.
2. The aircraft was landed halfway down the runway.
3. The decision to discontinue the landing was delayed.
4. The aircraft stalled in a left bank at low airspeed.

Other:

- Nil -

19/09/85

PITTS SPECIAL S-1C CF-UWQ
GATINEAU AIRPORT, QUEBEC
31 AUGUST 1984

REPORT NUMBER: 84-Q40066 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1814 EDT
OPERATION: Private Training
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	565	140
LAST 90 DAYS	7	7

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

After completing a practice aerobatic flight, the pilot returned to the airport and commenced a visual approach to runway 27. A cross-wind of 50 degrees from the right at 15 knots was present at the time. As the aircraft crossed the threshold at an approximate altitude of 30 to 40 feet, it developed a very high sink rate. The aircraft touched down hard in a three-point attitude, collapsing both main landing gear and damaging the propeller.

The aircraft did not have any apparent defects which might have contributed to the accident. The sudden loss of altitude prior to touchdown could be attributed to either operation at too low an airspeed or wind fluctuations. The surface wind was not reported to be gusty; however, the evidence suggests that a shallow ridge north of the runway threshold produced either a low level wind shear or a downdraft condition in the landing area. Because of the low altitude, the pilot did not have sufficient time to recover.

FINDINGS:

Cause Related:

1. The aircraft developed a high sink rate prior to touchdown.

2. The cross-wind, influenced by the local terrain features, produced either a low level wind shear or a downdraft condition which contributed to the high sink rate.

3. Because of the low altitude, the pilot did not have sufficient time to recover.

Other:

- Nil -

06/08/86

CESSNA 150E C-FXKO
ROCKHAVEN, SASKATCHEWAN
4 SEPTEMBER 1984

REPORT NUMBER: 84-C40077 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1045 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	898	500
LAST 90 DAYS	25	2

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot was attempting to land on a narrow dirt road in gusty cross-wind conditions. Just after touchdown, a go-around was initiated because of the gusty winds. The aircraft became airborne at low airspeed, and while the aircraft was still low to the ground, the right wing lifted in a strong gust. The left wing contacted the ground, and the aircraft cartwheeled. It came to rest in an inverted position.

As a general rule, the maximum recommended cross-wind component for this type of aircraft given in the Aeronautical Information Publication Canada is about 10 mph. At the time of the accident a 25 to 30 mph cross-wind component existed. The strength of the cross-wind had been underestimated by the pilot. There was no wind indicator on the ground.

The pilot, who had only two hours on type in the last 90 days, was accustomed to flying a more powerful aircraft. When the go-around was attempted, he mistakenly believed that it could be successfully completed.

Given the prevailing conditions, the go-around was begun too late, and the aircraft became airborne with insufficient airspeed.

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10/12/85

FINDINGS:

Cause Related:

1. A landing was attempted in cross-wind conditions which exceeded the capabilities of the aircraft.

2. The go-around was begun too late, and the aircraft became airborne at too low an airspeed.

3. The pilot had limited current experience on type.

Other:

-- Nil --

10/12/85

ROCKWELL 112A C-GOSJ
CRANBROOK, BRITISH COLUMBIA 45 mi W
8 SEPTEMBER 1984

REPORT NUMBER: 84-P40050 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1157 PDT
OPERATION: Private Recreational
DAMAGE: Destroyed
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	293	77
LAST 90 DAYS	35	35

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	1	-	-

SUMMARY REPORT:

The pilot planned to fly under visual flight rules (VFR) from Cranbrook Airport via Rose Pass to Boundary Bay Airport. The weather briefing which he had received forecast towering cumulus, rainshowers, and potential airframe icing and turbulence along the route. Twenty minutes after departure, the aircraft crashed at high speed in a heavily wooded area at the 6,500-foot level of Rose Pass. The final flight path was oriented across the valley rather than along it. It was determined that the engine was developing power at impact.

The investigation revealed that the pilot was inexperienced in mountain flying and was apprehensive about the flight. Although he had been flying in British Columbia for two years, he was unfamiliar with the intended route and had indicated that he disliked mountain flying in general. He may have been influenced in his decision to proceed on the flight by a report from another pilot who had just completed a VFR flight through the pass. This second pilot, who was familiar with the area, had reported rainshowers and "fair" VFR conditions.

As the pilot of C-GOSJ approached the highest terrain along the route, it is likely that he became trapped in a narrow portion of the pass which was closed in by cloud. The evidence suggests that the pilot attempted to reverse course and crashed because he either had insufficient room to maneouvre or he had lost visual reference with the terrain.

FINDINGS:

Cause Related:

1. The pilot departed in marginal VFR weather into an unfamiliar mountainous area.
2. The pilot entered a mountain pass which was closed in by cloud.
3. During an attempt by the pilot to reverse course, the aircraft flew into the ground for undetermined reasons.

Other:

- Nil -

02/04/86

BEECH V35B C-GRYA
CARP AIRPORT, ONTARIO
09 SEPTEMBER 1984

REPORT NUMBER: 84-040061 (Accident)
LOCAL TIME: 1300 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	895	350
LAST 90 DAYS	12	12

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The Beech Bonanza took off from Gatineau Airport on a flight to Carp Airport. After landing on runway 28 at Carp, the aircraft was taxied clear of the runway to give way to landing traffic. After two aircraft had landed, the pilot started to backtrack on runway 28. About 200 feet from the threshold, the pilot taxied clear of the runway to give way to a Cessna aircraft on final approach. As the Bonanza was taxied on to the grass beside the runway, the nose gear collapsed when it dropped into a six-to-eight-inch deep hole.

Examination of the nose gear assembly revealed that the nose gear lower drag link failed from overload caused by the externally applied forces.

The pilots of the Bonanza and Cessna aircraft both made radio transmissions on the mandatory frequency in use at the Carp Airport; however, neither pilot heard the other broadcast his intentions. The Cessna pilot saw the Bonanza backtracking and sensed that because of the approach speed of the Cessna, the Bonanza would have time to clear the runway; however, because the pilot felt the cross-wind was excessive, he decided to overshoot, in any case. The Bonanza pilot felt that he could not reach the taxiway at the threshold of runway 28 and decided to pull off on to the grass to allow the Cessna to land.

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18/03/86

FINDINGS:

Cause Related:

1. The nose gear lower drag link failed because of overload caused by taxiing into a hole.
2. The pilots' intentions were communicated over the mandatory frequency but neither heard the other's broadcast.

Other:

- Nil -

18/03/86

GRUMMAN AMERICAN AA-5A C-GUFT
LEAMINGTON, ONTARIO 4 mi NW
09 SEPTEMBER 1984

REPORT NUMBER: 84-040062 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1045 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	300	Unknown
LAST 90 DAYS	20	20

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	2

SUMMARY REPORT:

On final approach, at about 10 feet above the runway, the aircraft suddenly lost altitude and landed hard. The landing gear was damaged.

The pilot had flown an approach in a 30 degree, 20 mph right cross-wind. To the right of the runway threshold is a line of hangars which acted as a wind-break. As the aircraft descended below the hangar top into an area of reduced wind velocity, a loss of lift occurred, and the aircraft dropped on to the runway.

FINDINGS:

Cause Related:

1. Just before touchdown, the aircraft was flown into an area of wind shear which resulted in a loss of lift and a hard landing.

2. The pilot was unaware of the wind shear which was caused by the blanking effect of the hangars located near the runway threshold.

Other:

-- Nil --

3/10/85

TAYLORCRAFT BC 12-D C-FRJW
L'ASSOMPTION, QUEBEC
9 SEPTEMBER 1984

REPORT NUMBER: 84-Q40073 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1700 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	372	372
LAST 90 DAYS	4	4

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

After an uneventful landing on runway 24 of the private dirt airstrip, the pilot with one passenger, backtracked along runway 06 in preparation for another take-off. With the wind blowing from 195 degrees magnetic at 15 gusting to 20 mph, the pilot added power and lifted the tail wheel to taxi along the runway. As power was reduced to lower the tail wheel, the aircraft began to weathercock to the right. Despite application of opposite brake and rudder, the aircraft veered off the runway to the right. The main landing gear dug into the soft ground of the ploughed field, and the aircraft nosed over.

With a quartering cross-wind from the right, the pilot elected to taxi quickly by adding power and raising the tail wheel. When the power was reduced to lower the tail wheel, the pilot lost directional control and the aircraft yawed to the right of the runway. Because of the high speed, the aircraft could not be stopped before its wheels dug into the soft field. Under such wind conditions, the normal technique would be to taxi slowly, keeping the tail wheel on the ground and at the same time maintaining directional control with rudder, aileron, and brake inputs.

.../2

06/08/86

FINDINGS:

Cause Related:

1. The aircraft was being taxied in a brisk quartering cross-wind.

2. The pilot lost control while taxiing downwind at an excessive speed.

Other:

1. The pilot had flown very little in the previous 90 days.

06/08/86

CESSNA 172M C-GJVH
COURTENAY, BRITISH COLUMBIA 10 mi N.
15 SEPTEMBER 1984

REPORT NUMBER: 84-P40052 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1700 PDT
OPERATION: Private Recreational
DAMAGE: Destroyed
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	215	100
LAST 90 DAYS	20	20

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot was conducting a visual flight rules (VFR) flight from Campbell River to Courtenay, a distance of 20 miles. A flight plan was not filed nor was a weather briefing obtained for the trip, as the pilot felt that neither was necessary for such a short distance. On departure, the Campbell River weather was reported as a cloud base of 700 to 800 feet above ground level with 3 to 4 miles visibility in light rain and fog. En-route the cloud base lowered to 300 to 400 feet with visibility further reduced in rain. The pilot decided that the weather was too poor to continue the flight. He sighted a small airstrip and elected to land.

On the first attempt to land, the pilot flew a tight circuit to keep the runway in sight. As a result, he was forced to overshoot because the aircraft was too high and too fast on the final approach. On the second circuit, he lost sight of the runway and did not see it again until the aircraft was again high on the approach path, but the pilot, concerned about the deteriorating weather, felt that he had to land. The aircraft touched down with only 800 feet of runway remaining. The brakes were applied, but they were ineffective on the wet grass. The pilot, realizing that he could not stop before the end of the runway, applied power and selected the flaps up. The aircraft became airborne, and a turn was commenced to avoid high trees. During this turn, one of the aircraft's wheels struck a 160-foot tree, 30 feet from its top. The aircraft nosed over and fell to the ground. The pilot and passenger received only minor injuries and walked to a nearby house for assistance.

The landing was attempted on a 2,300-foot grass runway which has an initial slope upwards for about one-quarter of its length, followed by a pronounced downslope for the remainder. The approach to the runway is clear but the overshoot is obstructed by 160-foot trees.

.../2

02/04/86

The emergency locator transmitter (ELT), had it been required, would not have been effective as the co-axial cable to its antennae was broken during the accident. The lack of a flight plan coupled with the ELT problem could have seriously delayed rescue action if it had been required.

FINDINGS:

Cause Related:

1. The flight was continued into deteriorating weather.
2. A high and fast approach resulted in a long landing.
3. Because of the delayed decision to go around, the aircraft was unable to climb over trees at the end of the runway.

Other:

1. The ELT sustained damage that prevented it from functioning effectively.

02/04/86

DHC-6-300 C-GNSD
HUDSON'S BAY COMPANY
SUGLUK, QUEBEC
18 SEPT 1984

REPORT NUMBER: 84-Q40075 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1730 EDT
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	6500	2000
LAST 90 DAYS	42	12

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	4

SUMMARY REPORT:

It appeared to the pilot that the winds were calm as he flew over the village. Without confirming that the same wind condition applied at the airstrip nearby, he decided to land on runway 31, as its upsloping grade would allow him to slow down more rapidly on the landing roll. Shortly after touchdown, directional control of the aircraft was lost and it veered off the runway into a ditch.

It was later determined that the winds were not calm and that the aircraft had landed downwind in a strong, gusting, left-quartering wind. During the landing roll, as the aircraft slowed down, it began to weathercock into the cross-wind. The pilot's flight control inputs were ineffective in keeping the aircraft on the runway.

FINDINGS:

Cause Related

1. A no-wind condition had been anticipated on landing.
2. The aircraft was landed downwind in a cross-wind.
3. Flight control inputs were ineffective in maintaining directional control of the aircraft.
4. The aircraft hit a ditch when it veered off the runway.

Other

- Nil -

19/10/85

TAYLORCRAFT L-2 C-GLRV
BATHURST, NEW BRUNSWICK
20 SEPTEMBER 1984

REPORT NUMBER: 84-A40022 (Accident)
LOCAL TIME: 1115 EDT
OPERATION: Private Testing
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	500	60
LAST 90 DAYS	7	-

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The maintenance engineer/pilot had just completed a Certificate of Conformity Inspection (CCI) on his own aircraft and was conducting the required post-CCI test flight. Shortly after becoming airborne, the right wing dropped and contacted some trees. The aircraft came to rest in the trees after rotating through 180 degrees.

The take-off area, which was about 1,200 feet in length, was rough and grass covered. The aircraft took off in a five-knot tail wind, and as the aircraft approached the end of the runway, the pilot lifted off at too low an airspeed, and the aircraft stalled.

The pilot's medical had expired on 1 May 1984; therefore, his licence was not valid at the time of the flight.

FINDINGS:

Cause Related:

1. The pilot elected to take off with a five-knot tail wind.

2. The selected take-off area was unsuitable.

Other:

1. The pilot's licence was not valid.

22/04/86

BRITISH AEROSPACE 125/800B G-GAEL
GANDER AIRPORT, NEWFOUNDLAND
23 SEPTEMBER 1984

REPORT NUMBER: 84-A40904 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 0934 ADT
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Airline Transport (UK)

PILOT HOURS:	ALL TYPES CAPTAIN/CO-PILOT	ON TYPE CAPTAIN/CO-PILOT
TOTAL	8,300 / 1,577	140 / 130
LAST 90 DAYS	80 / 85	80 / 80

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	3
PASSENGERS	-	-	2

SUMMARY REPORT:

The aircraft was en-route from Los Angeles, U.S.A. to Luton, England and had stopped at Gander, Newfoundland for fuel. Just after take-off from Gander when the landing gear was selected up, the crew heard an unusual noise from the front of the aircraft and noted that the nose gear unsafe light remained on. The gear was recycled several times, but the attempts were unsuccessful. The aircraft was flown past the control tower twice, and the crew was informed by tower personnel that the nosewheel was partially retracted. After burning off fuel, the crew landed at Gander Airport with the gear selected up.

An investigation of the landing gear system found that the nosewheel door quick release strut lever was not secure when the landing gear was raised after take-off. The release strut fouled the nosewheel steering, which, in turn, jammed the wheels into the wheel well. This condition prevented the nose gear from fully retracting or extending. The purpose of the lever-actuated quick release strut is to allow access to the nosewheel well when the aircraft is on the ground. The lever is secured in the closed position by a latch and confirmation of its position is required on the pre-flight check. The investigation could not determine if the lever was inadvertently left unsecured or if it had become unlatched for some other unidentified reason.

FINDINGS:

Cause Related:

1. The nosewheel door quick release strut was not secure when the landing gear was raised.

2. The release strut fouled the nosewheel steering, which, in turn, jammed the wheels into the wheel well, preventing further nose gear operation.

3. It was not determined why the strut lever was not secure.

Other:

- Nil -

18/12/85

The Canadian Aviation Safety Board investigated this occurrence for the purpose of advancing aviation safety. It is not the object of the Board to determine or apportion any blame or liability.

AVIATION OCCURRENCE REPORT

CESSNA 172M C-GJKI
VANCOUVER, BRITISH COLUMBIA
23 SEPTEMBER 1984

REPORT NUMBER 84-P40054

SYNOPSIS

A Cessna 172, C-GJKI, crashed about 1,200 feet short of runway 26 at Vancouver International Airport. It was determined that aircraft control was lost following an encounter with wing tip vortices from a preceding Lockheed L-1011. Recommended wake turbulence avoidance procedures had not been followed by the pilot.

Ce rapport est également disponible en français.

12 December 1985

3.0 CONCLUSIONS

3.1 Cause-Related Findings:

1. There was inadequate separation between the L-1011, the Cessna 172 and the Boeing 747 on the approach to runway 26.
2. The recommended procedure of approaching above the flight path when following a heavy jet was not followed by the pilot.
3. Control of the Cessna 172 was lost when wake turbulence from the L-1011 was encountered.
4. Minimum separation criteria do not exist for non-radar controlled VFR aircraft following heavier aircraft on approach.
5. The absence of lateral restraint increased the amount and severity of the injuries sustained by the occupants.

3.2 Other Findings:

1. The pilot was certified and qualified for the flight in accordance with regulations.
2. The tower controller was certified and qualified in accordance with regulations.
3. The aircraft was certified, equipped, and maintained in accordance with regulations and approved procedures.
4. There was no evidence of any airframe failure or system malfunction prior to or during the flight.
5. The weight and centre of gravity were within the prescribed limits.

The CASB considers that ANO Series V, No. 19, as presently worded, is not sufficiently effective in controlling combined IFR and VFR traffic peaks at the designated airports. The Board recommends that:

> The Department of Transport develop and implement more effective means of managing traffic at major Canadian airports during periods of peak traffic demand.
>
> (CASB 85-31)

The Board is well aware of the long-standing issue of traffic mix and runway capacity at major Canadian airports in general, and at Vancouver in particular. In this accident, there is the question of whether the light Cessna aircraft should have been accommodated on a different runway or other suitable surface. The Board recognizes the control implications of utilizing alternate landing areas; however, such a practice may be safer than trying to accommodate all traffic on one runway. Consequently, the Board recommends that:

> The Department of Transport review the air traffic control procedures at Vancouver, and other major airports if required, to ensure that maximum appropriate use is made of all available landing areas, and that, when it is safe and operationally desirable, light VFR aircraft land on a separate runway or landing surface from that in use for heavy aircraft.
>
> (CASB 85-32)

4.2.2 Separation Criteria

The ATS Manual of Operations (MANOPS) specifies a minimum separation criterion of six miles between heavy aircraft and light aircraft on radar-controlled IFR approaches, and specifies a two-minute time separation for light aircraft taking off behind a heavy aircraft. However, the CASB notes that there is no criterion specified for a light aircraft following a heavy aircraft on final approach under visual conditions. In the case of this occurrence, the accident aircraft was approximately 52 seconds behind one heavy jet and less than two minutes ahead of another when the light aircraft turned onto the runway heading for a final approach. It is the view of the Board that the absence of clearly specified separation criteria for mixing light VFR aircraft into a radar-controlled pattern for heavy aircraft constitutes a serious safety deficiency. Therefore, the Board recommends that:

> The Department of Transport issue criteria for introducing light VFR aircraft into a traffic pattern for landing behind heavy aircraft.
>
> (CASB 85-33)

4.0 RECOMMENDATIONS

4.1 Action Taken

No urgent safety actions or interim recommendations were initiated by the Canadian Aviation Safety Board (CASB) as a consequence of this accident.

4.2 Further Action Required

4.2.1 Incompatible Traffic at Major Airports

The CASB is concerned that current air traffic control practices, which permit the mixing of light VFR aircraft with large air transport aircraft on IFR flight plans at major airports during peak traffic periods, unnecessarily compromise aviation safety. The cooperative attitude demonstrated by the air traffic controller in attempting to accommodate the slow VFR accident aircraft in a busy pattern of fast heavy IFR traffic, coupled with the accident pilot's demonstrated good understanding of the air traffic picture, resulted in the accident aircraft entering a potentially hazardous situation between the two larger aircraft. It is noted that the air traffic situation at the time of the accident was routine for Vancouver for that time of day in that it involved a heavy flow of large air transport arrivals and departures.

The Air Navigation Orders (ANO Series V, No. 19) authorize the Regional Controller, Civil Aviation, to restrict VFR arrival traffic at designated airports. However, such restrictions can only be imposed by NOTAM (Notice to Airmen) and the time lag involved effectively precludes on-duty controllers or ATC supervisors from responding to heavy traffic peaks by restricting VFR arrivals. Consequently, air traffic controllers are faced with a situation where the requirement to maintain a safe and orderly flow of traffic may be in conflict with a perceived compulsion to accommodate all of this traffic. The CASB believes that, in particularly busy periods, this situation places excessive demands on the controllers.

It is noted that the same safety concern was addressed in the Dubin Commission of Inquiry into Aviation Safety in Canada. In Volume III of his report, Justice Dubin recommended that VFR operators should require a departure or arrival reservation from the air traffic controller at designated high density traffic airports (Chapter 1, Recommendation 39).

That recommendation was agreed to in principle by Transport Canada officials but not implemented pending further study. Various other means of controlling traffic congestion and complexity have also been studied.

4.2.3 Survivability

While it is the Board's view that this accident was survivable, the death of a passenger indicated that the restraint systems provided in this type of aircraft are not completely crashworthy, and that the absence of any effective lateral restraint for the rear-seat passenger probably resulted in her death.

The Board is aware of the extensive studies that have been done by Transport Canada, the aircraft manufacturers, and other regulatory bodies on the practicality of installing restraint systems in light aircraft. It has also reviewed the Federal Aviation Administration's "Notice of Proposed Rulemaking" issued earlier this year that will require installation of shoulder harnesses for all seats in light aircraft that, if approved, would apply to U.S.-manufactured aircraft registered in Canada.

The Board supports these actions to increase the survivability for passengers in light aircraft and, although concluding that a recommendation would be premature at this time, will continue to monitor the situation in consideration of possible future recommendations.

4.2.4 Appreciation of Wake Turbulence

This accident highlights the necessity for a full appreciation of the severity of the potential effects of wake turbulence by pilots of light aircraft and by air traffic controllers. The CASB encourages the Department of Transport to make full use of the circumstances of this accident in its safety promotion activities.

CESSNA 188B C-GMXJ
SARNIA, ONTARIO 2 mi S
24 SEPTEMBER 1984

REPORT NUMBER: 84-040065 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1845 EDT
OPERATION: Private Aerial Spray
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,200	200
LAST 90 DAYS	200	200

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft was involved in an aerial seeding operation. To allow time for the ground personnel to reposition themselves, the pilot began a wide left turn. About three-quarters of the way through the turn, the pilot suddenly noticed a large set of power lines in front of him. He attempted to go underneath them, but as he did so, he spotted another set of smaller power lines beyond and lower than the larger wires. The pilot then attempted to land on the ploughed surface of a field immediately below him. During the flare, the aircraft mushed onto the surface and drifted right. The right main gear was torn off, and the aircraft slid along the field coming to rest in an upright position.

The seeding runs were being carried out in an east/west direction. To the northeast of the field, there were power lines which ran in a northwest/southeast direction. The power lines were at an angle to the extended flight path that the pilot had chosen to fly during the wide left turn. During the turn, the pilot had difficulty positioning the aircraft for an accurate run and was concentrating on looking ahead instead of to his right where the power lines were located. The winds at the time were estimated to be from the south at 14 knots. The evidence indicates that during the turn, the wind caused the aircraft to drift, thus extending the downwind portion of the turn and bringing the aircraft closer to the lines. When the power lines suddenly loomed up in front of him, the pilot had only a split second to decide whether to go over the lines or under them. Because the aircraft was downwind at the time, the pilot elected to go under the lines instead of trying to climb over them. It was at that point that the pilot noticed the lower set of power lines, and he attempted to land immediately in the field below.

.../2

26/06/86

FINDINGS:

Cause Related:

1. During a repositioning turn at low altitude, the pilot flew towards a set of power lines.

2. The pilot elected to fly under the power lines, only to discover a second smaller set of power lines underneath the first set.

3. The pilot elected to land immediately in a ploughed field, and the aircraft was damaged on landing.

Other Findings:

-- Nil --

26/06/86

AERONCA 11CC CF-QOK
ELLIOT LAKE, ONTARIO
29 SEPTEMBER 1984

REPORT NUMBER: 84-040070 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1200 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	211	54
LAST 90 DAYS	15	11

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot was unable to maintain directional control during a cross-wind landing in gusting wind conditions. As the power was increased in an attempt to go-around, the aircraft veered to the left off the runway. Ten feet off the edge of the runway, the right main landing gear struck some rocks and was torn off. The throttle was closed, and the aircraft slid into a swampy area. The pilot did not have any recent cross-wind landing experience.

The cross-wind landing technique used by the pilot was inadequate to maintain directional control on touchdown. Although power was applied during the attempted go-around, the airspeed did not increase sufficiently for the aircraft to become airborne.

The pilot had completed only six landings in the previous four months and therefore lacked landing proficiency. This lack of landing proficiency was due in part to the engine manufacturers break in specifications which required the first 10 hours with the new engine to be flown with no "touch-and-go's."

19/10/85

FINDINGS:

Cause Related:

1. The landing was attempted in a gusting cross-wind.

2. Directional control was not maintained during touchdown.

3. The power was increased for a go-around, but the aircraft ran off the edge of the runway before it could become airborne.

4. The landing gear was torn off when it struck the rocks beside the runway.

Other:

1. The pilot lacked recent landing practice.

19/10/85

CESSNA 172N C-GMFR
STEINBACH, MANITOBA
06 OCTOBER 1984

REPORT NUMBER: 84-C44027 (Incident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1945 CDT
OPERATION: Private Company Business
DAMAGE: Minor
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	400	130
LAST 90 DAYS	30	30

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was advised by a flight service station (FSS) specialist that the weather at destination was good, but that marginal conditions existed in some areas en-route. Forty-five minutes after departure, he encountered fog and low cloud and inadvertently entered the cloud while he was attempting to reverse his direction. During the 180 degree turn on instruments, the pilot became disoriented and lost control of the aircraft. He managed to regain control and continued to turn normally. Shortly afterwards, the aircraft flew out of the cloud, and the pilot proceeded back to his point of departure with no further incident.

The examination of the aircraft revealed dents in the leading edge of the wing and landing gear fairings. Twigs and leaves were also found in the damaged areas. The aircraft struck tree-tops when it was out of control; however, the pilot was not aware of the contact.

FINDINGS:

Cause Related:

1. The pilot departed on a night visual flight rules flight after being advised of marginal weather conditions enroute.

2. The pilot became disoriented in cloud and temporarily lost control of the aircraft.

Other:

-- NIL --

DRAFT NO. 5
DATE: 22/3/85
HQ ANALYST: H26

BELLANCA 8GCBC C-GQNX
PORT ALBERT, ONTARIO
06 OCTOBER 1984

REPORT NUMBER: 84-040069 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1200 EDT
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,330	165
LAST 90 DAYS	28	14

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft was taxiing to a parking area at an abandoned airfield when the main wheel struck a rock. As a result, the strut failed at the upper attachment point.

The pilot was familiar with the airfield which was occasionally maintained by employees of the pilot's company. While operating on the taxiway, the pilot did not carry out enough clearing turns to check for obstacles. The reduced forward visibility from tail wheel aircraft requires the pilot to make frequent clearing turns.

FINDINGS:

Cause Related:

1. The pilot did not exercise enough care in clearing the area over which the aircraft was being taxied.

2. The left wheel of the aircraft struck a rock which resulted in the failure of the main gear strut.

Other:

-- Nil --

19/10/85

PIPER PA18-150 CF-RZK
DELPHINE GLACIER, BRITISH COLUMBIA
6 OCTOBER 1984

REPORT NUMBER: 84-P40058 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1200 MST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2,082	291
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	1	-	-

SUMMARY REPORT:

The aircraft was on a pleasure flight to Delphine Glacier. When the aircraft was reported overdue, a search was initiated, and the aircraft was found on the glacier. It had struck the surface in a steep nose-down attitude. Both occupants died on impact.

The landing area on the glacier is at 9,200 feet above sea level. The glacier is roughly semi-circular in shape with higher terrain around the curved portion. Normal practice is to land upslope after completing a right-hand circuit around the glacier.

Examination of the wreckage indicated that the aircraft struck the glacier in a stalled condition with the engine developing high power. The analysis of the aircraft instruments confirmed the engine was operating normally at a high power setting. The turn and bank indicator indicated that the aircraft was in a turn to the right at impact. The aircraft was not equipped with a stall warning device nor is one required by its type certificate.

Weather conditions at the time of the occurrence are not known; however, there was an upslope wind estimated at 10 to 15 knots. It is possible that the higher than normal ground speed produced by this tail wind could have produced a false sense of airspeed to the pilot when he joined the right-hand circuit. It is also possible, depending on the cloud cover at the time, that the white, featureless terrain provided no visible horizon, and the pilot may have become disoriented.

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21/11/85

The pilot had experienced an episode of unconsciousness ten months before the accident. However, the specialist who examined the pilot at that time could find no organic or other reason for this episode. The autopsy did not reveal any evidence of pre-impact incapacitation.

The following laboratory report was completed: LP 341/84-Instrument Analysis.

FINDINGS:

Cause Related:

1. The aircraft stalled and struck the glacier in a steep nose-down attitude for undetermined reasons.

Other:

- Nil -

21/11/85

PIPER PA-28R C-GSPX
DAYSLAND, ALBERTA 1 mi S
8 OCTOBER 1984

REPORT NUMBER: 84-W40071 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1600 MDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	166	100
LAST 90 DAYS	17	17

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	2

SUMMARY REPORT:

The aircraft was landing at a farm airstrip to drop off a passenger. The pilot estimated that there was a 60-degree cross-wind from the left at 10 to 15 knots and to improve cross-wind control chose not to use flap. The first approach was high and fast, forcing the pilot to overshoot for another landing attempt. On the second approach, the aircraft crossed the runway threshold crabbing about 15 degrees into wind. As the aircraft was flared, the left wing was lowered and the right rudder was applied to line up with the runway. The aircraft touched down on the centre line but was pointing to the right of the runway heading. The aircraft continued tracking right of the centre line until the right wing collided with trees bordering the runway. It then swung to the right, and the landing gear collapsed.

The grass runway was about 1,360 feet long and had an average usable width of only 50 feet. The pilot had limited experience in operating from grass strips and operating at this airstrip would have been difficult under ideal conditions. At the time of the approach, the cross-wind component was near the maximum of 12 knots as calculated using the method recommended in the Aeronautical Information Publication Canada. The landing conditions encountered exceeded the capabilities of the pilot, and, as a result, aircraft directional control was lost after touchdown.

FINDINGS:

Cause Related:

1. A landing was attempted in cross-wind conditions near the maximum recommended limit.

2. Directional control was lost during the landing, and the aircraft struck trees bordering the runway.

Other:

- Nil -

28/05/86

PIPER PA 22 TRI-PACER C-GWLP
TOMAHAWK, ALBERTA 4 mi S
9 OCTOBER 1984

REPORT NUMBER: 84-W40073 (Accident)
LOCAL TIME: 1520 MDT
OPERATION: Private Ferry
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	410	385
LAST 90 DAYS	35 min	35 min

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was on final approach to land at an 800-foot sod airstrip on his farm when the aircraft developed a high sink rate. Before the pilot could arrest the sink rate, the aircraft landed hard in a three-point attitude, collapsing the nosewheel and nosing over. The pilot exited the inverted aircraft uninjured.

The pilot was making his approach into a light wind, planning to land on a two-to-three-degree upslope. The approach path passed over a stand of trees, and between the tree-line and the intended touchdown point was a steeper upslope of six-to-ten degrees. An orange marker delineated the end of the steeper slope and the beginning of the landing area. The pilot commenced his final approach slightly high above the trees, and in an attempt to correct to the proper glide path, he established an excessive sink rate. Before he could arrest the high sink rate with engine power, the aircraft touched down short of the threshold marker, in the steeper upslope area.

The pilot had not flown for three months before the accident flight; moreover, his total of 410 flying hours had been accumulated at a relatively low rate over eight years. Before attempting the approach to his home airstrip, he had flown four practice circuits at the larger field from which he took off.

The approach over the trees, although not inherently dangerous, required precise aircraft control and good judgement. The pilot's lack of recent flying practice was a factor in his misjudgement of the approach. The investigation found no defect in the aircraft or engine which could have contributed to the accident.

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18/03/86

FINDINGS:

Cause Related:

1. The pilot had not flown for three months and his lack of recent flying practice affected his judgement of the approach.

2. The approach to the farm airstrip was demanding, as there were trees close to the approach path and a steep slope leading up to the threshold.

3. An excessive sink rate was allowed to develop on final approach.

Other:

-- Nil --

18/03/86

BEECHCRAFT A-36 C-GPHE
TORONTO/LESTER B. PEARSON INTERNATIONAL AIRPORT, TORONTO, ONTARIO
11 OCTOBER 1984

REPORT NUMBER: 84-040072 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1640 CDT
OPERATION: Private Testing
DAMAGE: Substantial
PILOT LICENCE: Senior Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,900	100
LAST 90 DAYS	40	40

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The aircraft departed on a local test flight from runway 06L at Toronto/Lester B. Pearson International Airport. On board with the pilot was a company mechanic. At a height of about 400 feet, when the pilot made his first power reduction, the engine immediately began to run rough and then lost power. The pilot checked his fuel and advised the control tower operator of the problem; the tower operator cleared the pilot to land on runway 15. The landing gear was selected down, but the gear did not extend. The mechanic started to crank the gear down, but the pilot had to land the aircraft before the gear could be fully extended. Damage was limited to the propeller and landing gear doors.

Examination of the aircraft revealed that the throttle was not fully closed, the propeller pitch control was in the full fine position, and the mixture control was in the lean position. The pilot stated that the mixture control was moved to the lean position after the gear-up landing became necessary. The mixture, throttle, fuel, and ignition systems were checked and were found serviceable. A serviceable propeller was installed and an engine run-up was carried out. The engine operated normally and the reported malfunction could not be repeated. The cause of the engine power loss was not determined. An examination of the landing gear system revealed a defective down-limit switch. The switch was replaced and the landing gear operated without problems.

FINDINGS:

Cause Related:

1. The engine lost power for undetermined reasons.

2. The landing gear did not extend because of a defective down-limit switch.

Other:

-Nil-

26/06/86

PIPER PA 24-250 N7060P
CRANBROOK, BRITISH COLUMBIA 34 mi S
11 OCTOBER 1984

REPORT NUMBER: 84-P40907 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1105 PDT
OPERATION: Private Company Business
DAMAGE: Destroyed
PILOT LICENCE: Private (USA)

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	505	Unknown
LAST 90 DAYS	24	17

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	1	-	-

SUMMARY REPORT:

The pilot was on an instrument flight from Spokane to Cranbrook Airport via the V112 airway at a cruising altitude of 11,000 feet. As the aircraft approached the Cranbrook very high frequency omni-directional range (VOR), the pilot was cleared for an approach. About two minutes after the pilot acknowledged the clearance, radio contact was lost.

The aircraft was located nine days later 34 nautical miles (nm) southwest of Cranbrook Airport. It had struck a mountain slope at the 6,400-foot level. The aircraft had initially collided with trees in a 60-degree right-wing-low attitude and then travelled 57 feet before striking the surface in an inverted attitude. Examination of the wreckage revealed no evidence of any mechanical unserviceability or failure. An analysis of the engine tachometer established that the rpm was 2250 which is consistent for a cruise flight setting.

Prior to departure, the pilot had received a weather briefing forecasting instrument flight conditions with cloud layers to 20,000 feet and light to moderate rime icing in cloud. When the aircraft was 40 nm north of Spokane, the pilot reported that he was between layers at 11,000 feet, but when the aircraft was about 35 nm south of the Cranbrook VOR, the pilot requested a lower altitude from Seattle Center by saying "Seattle Center, this is six zero papa, we're kind of in and out of ... of the bottom layer here, can we go any lower then eleven". Seattle Center replied "six zero papa, unable, 11,000 MEA". A lower altitude could not be approved since the aircraft was already at the minimum en-route altitude (MEA); the 11,000-foot MEA continued to the Cranbrook VOR. The weather at Cranbrook was scattered cloud at 7,000 feet and one overcast layer at 10,000 feet. The actual weather at the accident site is not known. The pilot had a valid instrument rating.

28/05/86

When the aircraft was handed off to the Vancouver Air Traffic Control Centre (ATC) by the Seattle Centre, the pilot established radio contact with Vancouver ATC and asked if he could begin his descent by asking "Vancouver Center, this is Comanche seven zero six zero papa. Can I begin my descent in now?". Vancouver Center replied "seven zero six zero papa, it's cleared to the Cranbrook Airport for an approach". The aircraft was approximately 25 nm south of the VOR when the pilot acknowledged the clearance. The crash site was 15 nm south of the VOR along the V112 airway.

The investigation could not determine why the pilot descended below his MEA when he did. Since he had twice requested a lower altitude, it is possible that he misinterpreted the approach clearance as a clearance to descend immediately.

The following laboratory reports were completed: LP 362/84-Instrument Analysis and LP 409/84-Light Bulb Analysis.

FINDINGS:

Cause Related:

1. After the pilot received approach clearance, the aircraft descended below the MEA for undetermined reasons and struck a mountain slope.

Other:

- Nil -

28/05/86

CESSNA 172M C-GPME
PATAPEDIA RIVER, QUEBEC
14 OCTOBER 1984

REPORT NUMBER: 84-Q40083 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 0945 EDT
OPERATION: Private Other
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	121	26
LAST 90 DAYS	21	11

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

While operating in hilly terrain, the pilot encountered an area of patchy fog. As he continued, the fog thickened until it was impossible to turn around without losing visual contact with the ground. The pilot then selected a gravel road for a precautionary landing. Following touchdown, the pilot was forced to apply power and climb to avoid a sign post. The aircraft touched down a second time at the bottom of a rise in the road. As he came up over the top of the rise, the pilot suddenly realized that the road came to an end in a line of trees. Although power was applied for an overshoot, the aircraft overran the landing area and struck the trees.

As the fog had closed in behind the pilot during his flight, he was committed to a precautionary landing. The gravel road would have been adequate for the landing if it had not been necessary for the aircraft to become airborne to avoid the sign. As a result, there was not enough distance remaining to stop the aircraft or complete a successful go-around.

FINDINGS:

Cause Related:

1. The flight continued into an area of increasing fog.

2. A sign post on the gravel road used for the precautionary landing forced the pilot to reject his initial landing.

3. Following the second touchdown, the aircraft struck the trees as insufficient landing area remained to complete either the landing roll or the overshoot.

Other:

- Nil -

19/11/85

PIPER PA22-135 CF-NHP
DELORAINE, MANITOBA
17 OCTOBER 1984

REPORT NUMBER: 84-C40083 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1130 CDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	165	125
LAST 90 DAYS	12	12

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

While taxiing, the aircraft was subjected to a strong tail wind and nosed over on to its back.

Because of the uneven surface conditions caused by snow drifts, the tail section of the aircraft was higher than the nose. This condition allowed the wind to exert sufficient force on the tail section to flip the aircraft over as its wheels were dragging in snow.

FINDINGS:

Cause Related:

1. The aircraft was in a nose-low condition as it taxied over the snow drifts.
2. The tail section of the aircraft was exposed to a strong tail wind.
3. The wheel-equipped aircraft was taxiing in snow.

Other:

--Nil--

19/09/85

The Canadian Aviation Safety Board investigated this occurrence for the purpose of advancing aviation safety. It is not the object of the Board to determine or apportion any blame or liability.

AIRCRAFT OCCURRENCE REPORT

G.W. MARTIN VENEER LIMITED
PIPER PA-31T C-GAPT
LESTER B. PEARSON
INTERNATIONAL AIRPORT - TORONTO
TORONTO, ONTARIO
17 OCTOBER 1984

REPORT NUMBER 84-040073

SYNOPSIS

The aircraft was on a private business flight from Harcourt Airport, Ontario to Lester B. Pearson International Airport - Toronto. While on an ILS approach, the pilot-in-command became incapacitated and the aircraft descended rapidly, striking the ground in a nose-high, left-wing-down attitude. All three occupants sustained fatal injuries.

Ce rapport est également disponible en français.

26 June 1986

3.0 CONCLUSIONS

3.1 Cause-Related Findings

1. During the IFR approach just prior to intercepting the ILS localizer, control of the aircraft was lost.
2. The pilot-in-command, who occupied the right seat, was suddenly incapacitated.
3. The co-pilot was inexperienced in this aircraft type and was not type-rated.
4. The co-pilot was not qualified to fly in instrument conditions.
5. The co-pilot was unable to control the aircraft either because of his lack of experience or because of control interference by the incapacitated captain.
6. When control was lost, the aircraft descended rapidly, struck trees, and disintegrated in a field.
7. The pilot-in-command had prior knowledge of his own unfit physical condition.

3.2 Other Findings

1. The captain had been certified and qualified for the flight in accordance with existing regulations; however, by not revealing his medical condition, he was in contravention of Air Regulation 408(a).
2. The aircraft was certified and equipped in accordance with existing regulations.
3. There was no evidence of any airframe failure prior to or during the flight.
4. The weight and centre of gravity were within the prescribed limits.

4.0 RECOMMENDATIONS

4.1 Action Taken

No urgent safety action or interim recommendations were initiated by the Canadian Aviation Safety Board (CASB) as a consequence of this accident.

4.2 Further Action Required

The CASB is concerned that a pilot continued to fly while he and his personal physician were aware of a medical condition that would have caused the pilot's licence privileges to be withdrawn by the Minister of Transport, had the Minister been aware of such a condition.

The CASB notes the revisions to the Aeronautics Act, section 5.5, which now require pilots and their physician to advise the Minister of Transport of any medical condition that may affect licence privileges. Therefore, the CASB is not recommending any further safety action on this issue, at this time.

PIPER PA28R-200 C-GGUP
ASHERN, MANITOBA 10 mi SW
25 OCTOBER 1984

REPORT NUMBER: 84-C40085 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1014 CDT
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,300	15
LAST 90 DAYS	25	15

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The aircraft was on a cross-country flight when the engine oil pressure decreased suddenly and a splattering of oil appeared on the windshield. The pilot decided to carry out an immediate forced landing in a field. During the landing roll, the right main wheel struck a rock hidden in the grass. The right main gear collapsed, causing the right wing to drop on to the ground.

The aircraft engine (Lycoming IO 360 CIC) was known to have a slow oil leak in the vicinity of the right rear quarter of the engine. This condition had been monitored over a number of flights, and the leak was to be located and rectified during a 50-hour inspection which was scheduled at the end of the day's flying.

The slow leak came from the threaded port in the crankcase for the propeller governor oil line. The threads were failing, and, as they did, an oil leak slowly developed. The threads eventually failed completely, allowing the oil line to separate from the crankcase and causing oil to spray out under pressure until the oil supply was depleted.

Cause Related:

1. The repair of a known oil leak was deferred.

2. The loss of engine oil resulted when the propeller governor line separated from the crankcase.

3. During the forced landing, the right main gear collapsed when it struck a rock hidden in the grass.

Other:

-Nil- 28/05/86

CHAMPION 7ECA C-FTRU
LANORAIE, QUEBEC
28 OCTOBER 1984

REPORT NUMBER: 84-Q40089 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1300 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	824	56
LAST 90 DAYS	11	11

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

As the pilot was preparing to land in strong cross-wind conditions, a gust of wind pushed the aircraft to the right, causing it to touch down in a cultivated field next to the strip. The pilot, fearing that he would run into a ploughed area, applied full power to go around. As the aircraft became airborne, the left wing struck the ground and the aircraft cartwheeled to a stop. The pilot suffered only minor injuries because he was wearing an aerobatic-type shoulder harness.

The wind was 90 degrees to the runway heading at 15 gusting to 25 knots. This wind speed exceeded the 10 mph design cross-wind component for the aircraft.

FINDINGS:

Cause Related:

1. The cross-wind limitation for the aircraft was exceeded.

2. During the attempted go-around, the pilot lost control of the aircraft.

Other:

1. The aerobatic shoulder harness prevented the pilot from receiving serious injuries.

06/08/86

PIPER PA28R C-GQPM
FORT ST. JOHN, BRITISH COLUMBIA
9 NOVEMBER 1984

REPORT NUMBER: 84-W40074 (Accident)
INVESTIGATION SOURCE: Field Investigation
LOCAL TIME: 1155 MST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	950	500
LAST 90 DAYS	15	15

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

A take-off was attempted from a snow-covered, uphill airstrip that was obstructed on the departure end by trees. The aircraft lifted off, touched down in a nose-high attitude and became airborne again. The aircraft struck a small clump of trees that was 600 feet off the end of the runway. It then landed hard in an adjacent field, and the nose gear and left main gear collapsed. The aircraft was loaded to within 25 pounds of the maximum gross weight.

The aerodrome is a private farm strip. It is 1,700 feet in length with a rise in the centre. The runway had been cleared using a tractor-mounted snowblower. The surface was rough with crusty snow varying in depth from one-half to three and one-half inches.

The wind was calm and the temperature was -12 degrees Celsius at the time of the accident. The pilot reportedly removed frost and snow from the surface of the aircraft before the flight. The take-off was uphill with 25 degrees of flap selected. The pilot performed a soft-field, obstacle-clearance take-off by raising the nose of the aircraft at 55 mph with less than 400 feet of runway remaining.

According to the recommended procedure in the pilot handbook, the nose gear should be pulled off the ground as soon as possible and lift-off should be at the lowest possible airspeed. The aircraft should then be accelerated just above the ground to the best angle of climb speed (80 mph). The stall speed for this aircraft is about 65 mph.

... /2

The aircraft was likely over-rotated at 55 mph resulting in the aircraft becoming airborne at too low an airspeed to sustain flight. Recovery from the stalled condition could not be made before the aircraft struck the trees. The aircraft's performance was degraded by the increased drag on the wheels caused by snow on the airstrip, by taking off uphill, and by operating at close to maximum gross weight.

The following laboratory report was completed: LP 391/84 - ELT Examination.

FINDINGS:

Cause Related:

1. The snow-covered, uphill take-off area and high aircraft weight reduced take-off performance.
2. The aircraft was not accelerated to the best angle of climb speed before attempting to climb.
3. The aircraft stalled and struck a clump of trees that was 600 feet off the end of the runway.

Other:

-- Nil --

02/04/86

CESSNA 414A N26884
TORONTO ISLAND AIRPORT, ONTARIO
12 NOVEMBER 1984

REPORT NUMBER: 84-040906 (Accident)
LOCAL TIME: 1309 EDT
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Private (U.S.A.)

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	5,500	1,200
LAST 90 DAYS	Unknown	Unknown

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

During the descent from flight level 190, the aircraft accumulated clear ice. The windshield heat was selected and the de-icing boots were cycled several times. The windshield remained clear; however, the pilot could not determine how much ice had collected on the airframe.

On the approach, the pilot reduced power and flared for touchdown. The aircraft descended rapidly from about 10 to 20 feet above the runway and landed very hard on the main landing gear. The propellers, main wheel tires, left engine, and left wing were damaged. After shutdown, the pilot noted that parts of the aircraft were covered with three-quarters of an inch of ice.

On descent, the aircraft had accumulated a significant amount of ice on the unprotected areas. On the approach, the pilot did not maintain sufficient airspeed to compensate for the decreased performance of the aircraft, and the aircraft stalled on to the runway.

FINDINGS:

Cause Related:

1. The aircraft had accumulated sufficient airframe icing to reduce performance.

2. Extra airspeed was not maintained on final approach to compensate for the decreased performance of the aircraft.

Other:

-- Nil --

DATE: 18/03/86

PIPER PA28 C-FUSQ
BOWN FARM STRIP, RANFURLY, ALBERTA
25 NOVEMBER 1984

REPORT NUMBER: 84-W40079 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1130 MST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	78	9
LAST 90 DAYS	17	9

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

At the conclusion of a local pleasure flight, the pilot approached his farm strip for a landing. As the aircraft turned on to final, the nose dropped and the stall warning light illuminated. The pilot applied full throttle, pulled fully back on the control column, and rolled the wings level. The aircraft descended to the ground and landed hard, collapsing the nose gear and right main landing gear.

The inexperienced pilot did not relate the dropping of the aircraft nose to the onset of a stall. The nose-up control input aggravated the stall and prevented recovery. As a result, the aircraft mushed into the ground.

FINDINGS:

Cause Related:

1. The aircraft stalled when adequate airspeed was not maintained during the approach.

2. Proper recovery action from the stall was not taken.

Other:

-- Nil --

21/11/85

PA28-160 C-FOSY
VINELAND, ONTARIO 4 mi S
02 DECEMBER 1984

REPORT NUMBER: 84-040078 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1300 EST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	500	450
LAST 90 DAYS	3	3

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

Following a short pleasure flight, the pilot landed on runway 18 at his private aerodrome. He then taxied and took off on runway 27 for a circuit and another landing. When brakes were applied after touchdown, the pilot found them soft so he pumped the handle once but there was no brake pressure available. The pilot, realizing that there was little runway remaining, ground looped the aircraft to the left to preclude an overrun. The aircraft went through a fence and came to a stop in an adjacent vineyard.

An inspection of the brake system revealed that the brake pad on the right wheel was so badly worn that the hydraulic piston was able to travel beyond its normal limit. This condition caused the "O" ring to pop out of its groove and resulted in the loss of brake fluid. A review of the aircraft's journey log showed that the aircraft had flown only 9.7 hours since the 100-hour inspection. The technical log indicated that the brake pads had been replaced during this inspection. Considering the wear on the right brake pad, it is unlikely that the pad had been replaced as indicated.

FINDINGS:

Cause Related:

1. The "O" ring in the brake system popped because the worn brake pad on the right wheel had permitted the hydraulic piston to travel beyond its normal limit.

2. The hydraulic fluid was lost and as a result, brake pressure was not available.

3. To prevent an overrun, the pilot intentionally ground looped the aircraft.

4. The aircraft struck a fence adjacent to the runway.

5. Evidence indicates that the worn brake pad had not been replaced during the 100-hour inspection.

Other:

- Nil -

06/08/86

CESSNA 150H CF-WHE
OXFORD BAY, BRITISH COLUMBIA
05 DECEMBER 1984

REPORT NUMBER: 84-P44015 (Incident)
INFORMATION SOURCE:
LOCAL TIME: 1100 PST
OPERATION: Private Recreational
DAMAGE: Minor
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	110	110
LAST 90 DAYS	6	6

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot landed the aircraft on a snow-covered private airstrip at Oxford Bay. As the main wheels settled into the snow, the aircraft decelerated rapidly. The nose wheel dug in; the aircraft nosed over and came to rest in an inverted position.

The aircraft had just departed from another snow-covered airstrip, and no problems had been encountered. Before deciding to land at Oxford Bay, the pilot attempted to assess the runway condition by a fly-by at 100 ft. The combined 8-inch snow depth and 2 degree C temperature created a high degree of rolling resistance. The condition of the snow would be difficult or impossible to assess from the air.

The aircraft Certificate of Airworthiness had expired six days prior to the occurrence.

FINDINGS:

Cause Related:

1. A landing was attempted on a runway without sufficient information about its surface condition.

2. The snow encountered on landing caused the aircraft to nose-over.

Other:

1. The aircraft Certificate of Airworthiness had expired.

19/9/85

REGINA FLYING CLUB
PIPER PA28 C-GQXY
HUMBOLDT, SASKATCHEWAN
04 JANUARY 1985

REPORT NUMBER: 85-C50001 (Accident)
LOCAL TIME: 1600 CST
OPERATION: Flying Club Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	73	73
LAST 90 DAYS	33	33

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The aircraft was landing on a 2,500-foot asphalt runway which was covered with frost underneath a light covering of snow. The aircraft skidded off the end of the runway, damaging the nosewheel and propeller. The pilot did not determine the condition of the runway prior to his flight, although the information was available by telephone.

Although the pilot observed that the runway was snow covered, he was unaware of its slippery condition and did not use full flap for landing. By the time he realized that he could not stop the aircraft, it was too late to execute a go-around. Use of a short field landing technique and optimum braking may have avoided the overrun.

FINDINGS:

Cause Related:

1. The pilot was unaware of the slippery condition of the runway.

2. A go-around was not attempted because there was insufficient runway remaining.

3. The aircraft was damaged when it skidded off the end of the runway.

Other:

-- Nil --

18/03/86

CESSNA 170B C-FZZF
PARENT AIRPORT, QUEBEC
05 JANUARY 1985

REPORT NUMBER: 85-Q50001 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1520 EST
OPERATION: Private Ferry
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,100	500
LAST 90 DAYS	20	5

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

During the landing roll, the aircraft deviated slightly to the right, and the right wing tip contacted a six-foot-high snowbank at the edge of the 60-foot-wide runway. As the aircraft swung to the right, the left wing dropped and struck the runway surface before the aircraft came to a stop.

The pilot reported that the runway and surrounding area were covered with fresh snow, resulting in a whiteout condition. As a result, it was difficult to discern the snowbanks which bordered the side of the runway.

FINDINGS:

Cause Related:

1. A whiteout condition that prevailed at the time of landing prevented the pilot from seeing the snowbanks on the side of the runway.

2. The right wing tip hit a six-foot-high snowbank.

Other:

- Nil -

06/08/86

AERONCA 7DC C-FRDR
CAMP LE DEZIEL, QUEBEC
03 FEBRUARY 1985

REPORT NUMBER: 85-Q50003 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1300 EST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	768	644
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	-	-

SUMMARY REPORT:

Soon after take-off, at about 100 feet, the pilot lost control of his ski-equipped light aircraft while in a turn; the aircraft stalled and hit the frozen lake surface in a left-wing-down attitude.

The pilot encountered turbulence while in a steep climbing turn at low airspeed. The aircraft stall speed was increased because of the turn. The turbulence eliminated the margin between the low speed flown and the stall speed; the aircraft stalled. The low altitude did not permit recovery from the stall.

Shoulder harnesses were not installed in the aircraft, thus depriving the pilot of protection which could have reduced the severity of the injuries to his face.

FINDINGS:

Cause Related:

1. The pilot attempted a tight turn at low airspeed.
2. The aircraft stalled when turbulence was encountered.
3. Insufficient altitude was available for recovery.
4. A shoulder harness would have reduced the severity of the pilot's injuries.

Other:

-- Nil --

06/08/86

CESSNA 172K CF-YFO
ALLISTON, ONTARIO 3 mi NE
08 MARCH 1985

REPORT NUMBER: 85-050013 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1800 EST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	160	22
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	2

SUMMARY REPORT:

The aircraft was about to embark on a local recreational flight from a 50-foot wide private strip. The wind was blowing 90 degrees to the runway at 10 knots. During the take-off roll, the aircraft drifted to the side of the runway where the left main landing gear wheel contacted a snowbank, and the aircraft nosed over.

The cross-wind was less than the maximum demonstrated cross-wind component for this aircraft type. During the take-off roll, the appropriate cross-wind take-off technique was not employed, and the aircraft was allowed to drift to the left side of the runway.

FINDINGS:

Cause Related:

1. During take-off in a cross-wind, the appropriate cross-wind take-off technique was not employed and the aircraft was allowed to drift to the left side of the runway.

Other:

-Nil-

26/06/86

CESSNA 182K CF-CHK
WHEATLEY, ONTARIO 5.3 mi NE
16 APRIL 1985

REPORT NUMBER: 85-050027 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1307 EST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	520	310
LAST 90 DAYS	3	3

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

The pilot, with three passengers on board, was flying from Kitchener, Ontario to a private grass airstrip near Wheatley, Ontario. As the aircraft touched down on the strip, the nosewheel sank into soft ground and collapsed. The aircraft slid to a stop on the nose cowling.

Prior to the occurrence, the pilot had telephoned the private airstrip owner, who had informed him that the runway surface was firm. Acting on this information, the pilot used a normal landing technique instead of the soft field landing technique. As a result, the aircraft's three wheels touched down almost simultaneously, and the nosewheel dug into the ground.

FINDINGS:

Cause Related:

1. The pilot was informed by the owner of the airstrip that the runway surface was firm, when in fact it was soft.

2. The pilot carried out a normal landing on the runway.

3. The nosewheel sank into soft ground and collapsed.

Other:

- Nil -

26/06/86

PIPER J-5A C-FVEO
DELTA AIR PARK, BRITISH COLUMBIA
25 April 1985

REPORT NUMBER: 85-P54007 (Incident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1100 PST
OPERATION: Private Recreational
DAMAGE: Minor
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	180	7
LAST 90 DAYS	30	7

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot, who had recently checked out on type at Delta Air Park, was practising circuits. During the final approach of the first circuit the aircraft tail wheel struck a marker ball on a power line crossing the approach path to the runway. The pilot maintained control of the aircraft and carried out a normal landing.

The power line is about 40 feet high and about 100 feet back of the runway threshold at the unlicensed aerodrome. The power lines close to the runway are hazardous obstacles requiring diligence by those operating at this aerodrome. The runway is 2,300 feet long. The approach was flown too low and the pilot was unable to avoid the hydro wire.

FINDINGS:

Cause Related:

1. A power line is located near the runway threshold.

2. The approach was flown too low and the aircraft struck a power line.

Other:

- Nil -

28/05/86

LUSCOMBE 8E C-FSHF
NANAIMO, BRITISH COLUMBIA
05 MAY 1985

REPORT NUMBER: 85-P50007 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1530 PDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	240	70
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

On a power-off approach to Nanaimo, the pilot, aware that he was high, sideslipped the aircraft to lose height. On short final, he realized that he had lost too much height and had to apply power. The aircraft touched down hard, on the runway, in a high nose attitude and bounced. The right wing dropped and the aircraft started to turn to the right. The pilot attempted to recover by applying opposite aileron and full power, but the nose of the aircraft dropped, and the aircraft struck the ground in a right-wing-low, nose-down attitude. The aircraft cartwheeled and came to rest 125 feet to the right of the runway.

The investigation determined that the aircraft was in a stalled condition after it bounced. The application of aileron and full engine power in the attempt to recover from the stall was too late to effect a recovery.

FINDINGS:

Cause Related:

1. The aircraft stalled following a bounced landing.

2. The pilot was unable to effect a recovery.

Other:

- Nil -

28/05/86

CESSNA 172N C-GLQE
EXETER, ONTARIO
20 MAY 1985

REPORT NUMBER: 85-050032 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 2030 EST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	65	65
LAST 90 DAYS	25	25

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

Following a short pleasure flight, the pilot attempted to land on a 2,300-foot long private airstrip. After the aircraft touched down, it overran the wet grass-surfaced runway and struck a hydro pole, causing damage to the left wing.

The runway was slippery because of heavy rain showers during the day, and as a result, braking action was poor. Instead of using a short field landing technique, the pilot attempted a normal approach and landing technique which made his approach and touchdown speed too fast for the slippery runway.

FINDINGS:

Cause Related:

1. The landing speed was too fast for the existing runway conditions.

2. Braking action was poor on the wet grass-surfaced runway.

Other:

-Nil-

26/06/86

PIPER PA-18A C-FVPT
BLUE SUCKER LAKE, ONTARIO
2 JULY 1984

REPORT NUMBER: 84-040032 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1320 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	600	500
LAST 90 DAYS	50	50

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot was taking off from a small lake which was surrounded by hills. Immediately after lift-off, a climbing left turn was made. While in the turn, the aircraft settled back on to the water, and the left wing was damaged. The temperature was 30 degrees Celsius and the wind was from the southeast at 8 to 12 mph.

A combination of low airspeed, high ambient temperature and a possible downdraft may have affected the aircraft's performance.

FINDINGS:

Cause Related:

1. A low-level, low-airspeed turn combined with a high ambient temperature and a possible downdraft may have resulted in a loss of lift, causing the aircraft to settle on to the water.

Other:

- Nil -

03/10/85

MAULE M4-220C C-FFCH
STURGEON FALLS, ONTARIO 15 MI S
23 JULY 1984

REPORT NUMBER: 84-040047
LOCAL TIME: 1900 EDT
OPERATION: Private Recreational
DAMAGE: Destroyed
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1200	400
LAST 90 DAYS	30	25

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The float plane pilot departed on a fishing trip to a remote lake 15 miles south of his base. Although it is not a legal requirement, he did not leave a flight notification with a responsible person nor did he carry an ELT. Prior to starting the engine for the return flight the pilot smelled gasoline as he primed the engine. When the starter was engaged he observed smoke and felt heat in the area of the rudder pedals. The pilot evacuated the aircraft with his life jacket, leaving the aircraft to burn down to the floats.

When the pilot primed the engine he may have caused excess fuel to drip from the carburettor and run out the bottom of the engine cowling in the area of the exhaust stacks. This fuel was probably ignited by a flame from the exhaust stack as the engine was turned over.

FINDINGS

Cause Related

1. Fuel may have leaked from the carburettor and may have accumulated close to the exhaust pipes as a result of fuel priming prior to start.

2. The fire started when the pilot attempted to start the engine.

3. The aircraft was consumed by fire.

Other

1. Had the pilot been injured, the lack of a flight notification would have made him difficult to locate.

DATE: 09/05/85

CESSNA 185 C-GMKU
OKANAGAN LAKE, BRITISH COLUMBIA
24 JULY 1984

REPORT NUMBER: 84-P40036 (Accident)
LOCAL TIME: 0755 PDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,100	500
LAST 90 DAYS	31	31

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The amphibious aircraft departed for a two-hour flight to a lake from a land aerodrome. Weather conditions at the lake were good with small ripples on the surface as a result of light winds. During touchdown the aircraft swerved violently to the right and the left wing contacted the water. The pilot was able to regain directional control and stopped the aircraft with no further damage. When the aircraft was taxied to the docking area the right landing gear was found to be partially down below the float.

On this type of float the gear is raised, lowered and locked up by hydraulic pressure. Investigation revealed a leaking and badly chafed hydraulic line near the fire wall. The chafing was caused by the left cowl flap rubbing against the line resulting in a small puncture and a loss of hydraulic fluid. Enough fluid had leaked to prevent the right gear from being fully raised. The gear then drooped as much as the slack in the cable system allowed. Aerodynamic pressure kept the gear streamlined and created minimum drag which was not noticed.

The actual gear position following take-off and during the before-landing check was not discovered. There are two independent visual checks to confirm gear position. There is a light in the cockpit that indicates the position of the gear and also, an orange colored sight indicator on the top surface of each float. The pilot must look down to see the position of the gear; however, if seated alone on the left side, a pilot must unbuckle his seat belt and move over to the right seat to visually check the indicator. The chafed hydraulic line was not detected in the periodic inspection carried out five days prior to the occurrence.

19/09/85

.../2

FINDINGS:

Cause Related:

1. The right landing gear could not be raised fully because of a hydraulic leak.
2. The hydraulic line leak was caused by contact with the left cowl flap.
3. The leak was not detected during the last periodic inspection, five days before the occurrence.
4. The actual gear position was not ascertained by either of the two methods available.

Other:

- Nil -

19/09/85

CESSNA U 206F C-GVQG
LAC CROCHE, QUEBEC
24 JULY 1984

REPORT NUMBER: 84-Q40050 (Accident)
LOCAL TIME: 1100 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	365	244
LAST 90 DAYS	45	45

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	2

SUMMARY REPORT:

The float-equipped aircraft was taking off into gusty wind conditions. A gust lifted the Cessna into the air before it had reached its normal take-off speed. The gust diminished and the aircraft dropped back onto the water in a slight nose-down attitude. The right float struck the water and dug in causing the aircraft to nose over.

Due to the strong gusting wind conditions, the aircraft was allowed to become airborne prematurely at a speed that would not keep the aircraft in flight. Because of the low airspeed, longitudinal control was lost as the gust diminished. It was not possible to stop the aircraft from nosing over as the float dug into the water.

FINDINGS:

Cause Related:

1. The surface winds were strong and gusting.

2. The aircraft became airborne at a speed below normal take-off speed.

3. Longitudinal control was lost due to low airspeed when the gust diminished.

4. The right float dug into the water causing the aircraft to nose over.

Other

- Nil -

19/09/85

CESSNA 185F C-GZYN
STONEY RAPIDS, SASKATCHEWAN 60 mi SE
27 JULY 1984

REPORT NUMBER: 84-C40057 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 0800 CDT
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	368	90
LAST 90 DAYS	53	53

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	4

SUMMARY REPORT:

After circling the lake, the pilot landed his float-equipped aircraft into a minimal wind from the south. Touchdown appeared normal on the slightly rippled water. Sensing that the aircraft was rapidly approaching the shore, the pilot selected full flaps and retarded the throttle. The aircraft traversed the remaining water surface, struck the shore, flipped over and came to rest in an inverted position.

Although the pilot was familiar with the landing area, he touched down too close to the shore and could not stop in the distance available.

FINDINGS:

Cause Related:

1. The landing distance between the selected touchdown point and the shoreline was insufficient.

Other:

-- Nil --

21/11/85

MAULE M-4-210C C-FCKR
LAC CRISTAL, QUEBEC
27 JULY 1984

REPORT NUMBER: 84-Q40051 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1700 EST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	337	10
LAST 90 DAYS	7	7

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

The pilot, with three passengers on board, prepared to take off for the return flight to St.Michel des Saints, Quebec. The conditions were suitable for a visual flight rules (VFR) flight, and the wind was from the south at 10 knots. The first take-off was rejected as difficulties in becoming airborne were encountered. The aircraft was then taxied to the most northern part of the lake, and the second attempt was successful. Shortly after lift-off, the pilot decided to land and turned left to execute the landing downwind. During the turn, the aircraft stalled and landed hard on the right float, which activated the emergency locator transmitter. The float support strut assembly collapsed permitting the cabin to partially submerge, but the aircraft remained afloat.

The damages sustained by the aircraft were consistent with high vertical impact forces. The aircraft was about 100 pounds over the maximum gross weight, and the centre of gravity (C of G) was three inches beyond the aft limit. Much evidence was lost because the pilot/owner had removed the aircraft and had disassembled most of the aircraft components without the investigator's permission.

Neither the pilot nor the passengers sustained any injuries. However, the pilot had advised his passengers not to wear seat-belts; he believed that seat-belts would hamper the chances of escape should the aircraft overturn during the take-off or landing phases of flight.

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The evidence suggests that the aircraft stalled as a result of a turn downwind at a low airspeed, an overloaded aircraft, and a C of G beyond the aft limits.

FINDINGS:

Cause Related:

1. The aircraft was about 100 pounds over maximum gross weight.
2. The C of G was three inches aft of the prescribed limits.
3. The aircraft stalled during a low altitude turn downwind at low airspeed.

Other:

1. Seat-belts were not worn on the direct request of the pilot.
2. The pilot/owner removed and disassembled the aircraft without permission from the proper authority.

06/08/86

PIPER J3, CF-DGP
ALMONTE, ONTARIO, 1 MI SOUTH
2 AUGUST 1984

REPORT NUMBER: 84-040050 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1440 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	454	340
LAST 90 DAYS	6	6

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	-	-

SUMMARY REPORT:

The float-equipped aircraft had been refueled for a short flight home. Two extra five-gallon fuel containers were stowed and secured in the rear seat area. The take-off and climb were normal.

When the aircraft was levelled-off at 1,800 ft above sea level, it was discovered that the lateral movement of the control column was restricted. A check revealed that one of the fuel containers had worked loose and was interfering with the rear seat control column.

With visibility reduced by hazy conditions, the pilot decided to make a precautionary landing on a river. Power was reduced and a long straight-in approach to the river was made. At about 70 ft above the water, the pilot noticed three people waving at him from a boat. He waved back and at the same time the aircraft struck two wires on a high tension power line which crossed the river at that point. The wires were damaged but did not break. The aircraft fell almost vertically into the river and sank in about 10 ft of water. There were no obstruction markings on the wires or the supporting towers of the power line.

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The loose fuel container had worked forward and prevented lateral control column movement to the right. Rather than risk the chance of further interference, the pilot decided to land and secure the loose container. Although he was familiar with the area and aware that a power line crossed the river, the pilot did not see it, when he cleared the area prior to landing. The distraction created by the boaters was momentary but would partially account for the wires not being observed. The hazy conditions restricted visibility and would have made the detection of the unmarked power line more difficult.

FINDINGS:

Cause Related:

1. A loose fuel container restricted lateral control column movement.
2. Flight visibility was restricted in haze.
3. During an approach for a precautionary landing the pilot was momentarily distracted by people in a boat.
4. The unmarked power line was not observed and was struck by the aircraft.

Other:

- Nil -

19/09/85

CESSNA TU206G C-GBEL
LAC MADELEINE, QUEBEC
10 AUGUST 1984

REPORT NUMBER: 84-Q40055 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1130 EDT
OPERATION: Private Company Business
DAMAGE: Destroyed
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2900	1200
LAST 90 DAYS	238	238

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	3	-	-

SUMMARY REPORT:

The flight to a fishing camp had been planned for a week. The pilot was very familiar with the route which was over mountainous terrain. The 0800 departure was delayed because the weather conditions were below minimums for a flight under visual flight rules (VFR).

At 0930, the pilot requested a weather briefing from the operator of a nearby airport. He was informed that low ceilings and low visibility were present over the planned route and that cumulonimbus cloud (thunderstorm) was forecast during the afternoon for his destination.

At 1030, the pilot decided to proceed with the flight intending to use LORAN C for navigation. He taxied across the lake, and after the three passengers boarded, the aircraft took off. The base of clouds was at 2,000 feet above sea level and was covering the mountain tops along the planned route. To remain clear of clouds, the pilot flew into a valley. Fifteen minutes after take-off, the aircraft entered low stratus, and the pilot attempted to reverse course. While performing a 180-degree turn in cloud, the aircraft struck a mountain at 2,700 feet above sea level.

Although there had been no appreciable improvement in the en-route weather, the pilot's decision to depart was influenced by the weather briefing which forecast thunderstorms in the destination area in the afternoon. As he was familiar with the route and the terrain, and felt he could use the LORAN C to navigate, he was confident that he could make his way to the destination. When the aircraft entered low stratus cloud, the pilot attempted to return to visual conditions by performing a 180-degree turn. There was insufficient lateral clearance to execute the turn and the aircraft struck a mountain.

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FINDINGS:

Cause Related:

1. The VFR flight was attempted in unsuitable weather conditions.
2. The pilot continued a VFR flight into deteriorating weather.
3. Visual contact was lost with the ground and the aircraft struck a mountain.

Other:

- Nil -

06/08/86

DE HAVILLAND DHC-2 C-FEYZ
WATSON LAKE, YUKON TERRITORY 100 mi N
14 AUGUST 1984

REPORT NUMBER: 84-W40061 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1300 YDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	12,500	3,500
LAST 90 DAYS	Unknown	Unknown

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	-	1	-

SUMMARY REPORT:

During the initial climb, the float-equipped aircraft struck some trees with its left wing, rolled over and contacted the ground in a nose-down attitude. The pilot was fatally injured and his son sustained serious injuries.

The area used for take-off is a lake at an elevation of 3,500 feet above sea level and 1,750 feet in length. A corridor of 160 feet in width had been cut through the trees at one end of the lake to facilitate aircraft operations. At the time of the accident, the winds were light and the temperature was about 10 degrees Celsius.

An examination of the aircraft and engine did not reveal any evidence of a pre-occurrence failure or malfunction. The aircraft's weight and centre of gravity were within the prescribed limits. Performance data from the Pilot's Operating Manual indicates that a minimum distance of 1,630 feet is required to clear a 50-foot obstacle. Although the corridor was of sufficient width, the aircraft did not track toward the centre, and the left wing struck three trees 14 feet above the ground on the left side of the clearing.

The following laboratory report was completed: LP 278/84 - Analysis of Instruments.

21/11/85

FINDINGS:

Cause Related:

1. The take-off area was marginal for a float-equipped DHC-2.

2. The aircraft did not climb along the prepared take-off corridor.

Other:

-- Nil --

21/11/85

CESSNA 185F N8767Z
BEAR LAKE, BRITISH COLUMBIA
19 AUGUST 1984

REPORT NUMBER: 84-P40904 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1255 MDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private (U.S.A.)

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	6,231	Unknown
LAST 90 DAYS	57	Unknown

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	-	-	1

SUMMARY REPORT:

Following an uneventful five-hour flight from his floatplane base in the northwestern United States, the pilot was making a slow descent for landing when he experienced a loss of power. By radio, the pilot advised the pilot of an accompanying float-equipped aircraft that he had run out of fuel and was planning to glide to the destination lake. As the aircraft approached the lake, it struck trees, rolled to the right, and hit the surface of the water in an inverted position. The passenger was able to escape but the pilot drowned.

During the investigation, a functional test of the engine was carried out. The engine performed in accordance with the manufacturer's specifications.

The fuel tanks, which had been filled to capacity on departure, were found empty. Four full gas cans, holding six U.S. gallons of fuel each, were found stored in the float compartments. Calculations of the time aloft and the fuel consumed indicate that the aircraft performance exceeded both the range and endurance profiles published by the manufacturer. After the engine had stopped, the pilot overflew a suitable landing area while attempting to glide to the destination lake.

A weather briefing had not been obtained nor a flight plan filed prior to departure. Forecast upper winds were encountered which produced a head wind component and resulted in an increase in the time flown en-route, and consequently increased the fuel consumed.

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21/11/85

FINDINGS:

Cause Related:

1. A weather briefing was not obtained prior to departure.

2. A flight was attempted that was beyond the range capabilities of the aircraft.

3. Upper winds were encountered which produced a head wind component and resulted in an increase in the time flown en-route, and consequently increased the fuel consumed.

4. The engine stopped because of fuel exhaustion.

5. A suitable landing area was overflown while gliding to the destination lake.

6. The gliding distance to the lake was misjudged and trees were struck on the approach.

Other:

1. Additional cans of fuel were carried in the float compartments.

2. A flight plan was not filed.

21/11/85

CESSNA 185 C-GYXY
LA RONGE, SASKATCHEWAN 40 mi W
23 AUGUST 1984

REPORT NUMBER: 84-C40072 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1430 CST
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	255	49
LAST 90 DAYS	53	49

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot taxied for take-off from the south end of the usable water surface where an estimated one-half mile was available. Flaps were extended 20 degrees before power was applied; the take-off run appeared longer than normal. After lift-off, the aircraft, which was equipped with aqua-floats, did not gain altitude or increase in airspeed. As the aircraft was quickly approaching the shore, the pilot decided to reject the take-off. He shut down the engine on touchdown but could not stop the aircraft before it travelled through a rice field and on to a marshy shoreline where the left wing struck a tree.

The elevation was 1,290 feet above sea level, the temperature was 24 degrees Celsius, the relative humidity was high, and the winds were light. A combination of high elevation, high temperature, high humidity, and light winds would significantly degrade aircraft performance.

The recommended take-off procedure was followed by selecting the flaps to the 20-degree position. Once airborne, the pilot felt he could not clear the terrain at the far end of the lake. The decision to reject the departure was not made in time to stop safely on the remaining surface. The pilot, although he had flown in and out of this area in the previous 30 days, was relatively inexperienced on float-equipped aircraft.

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FINDINGS:

Cause Related:

1. High temperature, humidity, and light wind reduced take-off performance.
2. The decision to reject the departure was not made in time to stop safely on the remaining surface.

Other:

- Nil -

02/04/86

PIPER PA-18S C-GPAG
TETU LAKE, QUEBEC
09 SEPTEMBER 1984

REPORT NUMBER: 84-Q40072 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 0730 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	65	14
LAST 90 DAYS	14	14

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

After becoming airborne to a height of about three feet, the float-equipped aircraft encountered a sudden gust of wind which lifted the left wing. The aircraft turned to the right and headed toward a tree-covered rock bluff, and the pilot, realizing that the aircraft would not be able to clear the obstacles, closed the throttle and landed. The right float dug in, and the aircraft overturned.

The pilot, who had received 6 hours of dual training on floats and a total of 14 hours on type, felt that he was not adequately prepared for the varying conditions that are encountered in bush flying.

FINDINGS:

Cause Related:

1. The pilot was inexperienced on type and in float operations.

2. Directional control was lost when the aircraft encountered a gust of wind.

Other:

- Nil -

06/08/86

CESSNA A185F C-GBOB
GOOSE BAY, LABRADOR 13 mi SE
27 SEPTEMBER 1984

REPORT NUMBER: 84-A40023 (Accident)
LOCAL TIME: 1437 NDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	8,000	500
LAST 90 DAYS	142	142

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The float-equipped Cessna 185 was en route from Charlottetown, Labrador to Goose Bay, Labrador. About one hour and thirty minutes after take-off, while flying through turbulence, the engine (Continental 10-520-D) began to run rough. The pilot switched tanks and put on the boost pumps, but the engine stopped. The pilot tried to restart the engine but was unsuccessful. He then transmitted a Mayday and force-landed the aircraft in some trees.

Prior to the accident flight, the aircraft was refuelled from fuel drums. During this procedure, the only precaution taken by the pilot was to pump the fuel through a metal screen filter; however, this would not prevent water from entering the aircraft's fuel system.

Examination of the aircraft's fuel system showed that there was fuel in both tanks and that the fuel could be distributed to the cylinders. However, when the filter screen in the fuel injector was removed, it contained two ounces of water, which was enough to cause fuel starvation.

FINDINGS:

Cause Related:

1. Water was introduced into the fuel system during refuelling from barrels.

2. There was no check for water following refuelling.

3. Accumulated water in the fuel injector caused fuel starvation.

Other:

- Nil -

22/04/86

STINSON 108-3 CF-ZCZ
ITCHA LAKE, BRITISH COLUMBIA
27 SEPTEMBER 1984

REPORT NUMBER: 84-P40056 (Accident)
LOCAL TIME: 1530 PDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	8,000	70
LAST 90 DAYS	15	15

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

Following a hunting trip, the pilot and a passenger were departing from a small lake. During take-off, while on the step at 45 kt, the left float hit a rock. The aircraft became airborne at low airspeed, but was not able to outclimb swampy terrain at the end of the lake. During impact, the right float struck rocks, and the aircraft nosed over and came to rest in an inverted position.

This was the fourth attempt to take off from the lake which is at 5,200 ft asl and has only 2,500 ft of straight take-off distance available. The aircraft was at its maximum allowable gross weight and the ambient temperature had increased after the aircraft's arrival at the lake. The previous take-off attempts in several different directions were discontinued because of slow acceleration. The pilot attempted to take off into wind, but the wind was variable. In addition, the hills surrounding the lake restricted some departure directions.

On the final attempt, the take-off run was a curved path around an island in the middle of the lake in order to get more take-off distance. The left float struck the rock while turning around the island, and the aircraft bounced into the air prematurely. The pilot elected to continue the take-off because he was concerned about manoeuvering on the water with a damaged float.

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FINDINGS

Cause Related:

1. Because of the aircraft's gross weight and the ambient conditions, the straight line take-off distance available was insufficient.
2. During a curved take-off run around an island to obtain more manoeuvering area, the left float struck a rock.
3. The aircraft became prematurely airborne at too low an airspeed.
4. The pilot elected to continue the take-off because of concerns about the damaged float.
5. The aircraft could not clear the terrain at the edge of the lake.
6. Following impact, the aircraft nosed over when the right float struck the rocks.

Other:

-- NIL --

19/09/85

CESSNA 185D C-FRVC
ORILLIA AIRPORT, ONTARIO 2 mi NE
28 SEPTEMBER 1984

REPORT NUMBER: 84-040068 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1100 EDT
OPERATION: Private Recreational
DAMAGE: Destroyed
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	125	25
LAST 90 DAYS	50	25

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The float-equipped aircraft was on a long final approach for a landing on a lake, when the engine (Continental IO-470-F) suddenly stopped. The fuel tanks were reselected, and the boost pump was turned on, but the engine would not restart. The pilot decided to carry out a forced landing on a grass-covered field.

An extensive examination of the engine and its components and the associated fuel system failed to reveal any reason for the engine stoppage. The engine performed normally when it was ground run, and the engine stoppage could not be duplicated.

FINDINGS:

Cause Related:

1. The engine stopped without any warning.

2. Despite an extensive examination of the engine and its fuel system, the cause of the engine stoppage remains undetermined.

Other:

-- Nil --

3/10/85

CESSNA 185F C-GEZD
RUBY LAKE, SASKATCHEWAN
1 OCTOBER 1984

REPORT NUMBER: 84-C40082 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1500 MST
OPERATION: Private Training
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	6,000	700
LAST 90 DAYS	100	50

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot-in-command was providing conversion training to the aircraft owner and the owner's son who were private pilots. The instructor pilot, who was sitting in the right seat, was demonstrating a cross-wind landing. On touchdown, the left float struck the water, while the aircraft was crabbed and the aircraft overturned. The occupants of the aircraft escaped through the main door window but did not don life vests; they stayed on the floats until they were rescued, about one hour later.

Reportedly there was a 90-degree cross-wind from 17 to 26 knots. The flaps were set at 40 degrees. Just before touchdown, a gust of wind was encountered and directional control was lost. Reportedly full left rudder was applied, but this did not prevent the side impact on the float. When the rudder was applied a "click or crack" was heard. It was felt that the rudder pedals which can be stowed in the right seat had possibly moved to this position, but this could not be confirmed. The manufacturer's maximum demonstrated cross-wind velocity on wheels for this aircraft model is 15 knots.
FINDINGS:

Cause Related:

1. Directional control was lost while landing in a wind which exceeded the manufacturer's maximum demonstrated cross-wind velocity.

Other:

1. The occupants escaped from the aircraft without putting on life vests.

21/11/85

MAULE M-4-220S CF-VCV
LAC PAS DE POISSON, QUEBEC
03 OCTOBER 1984

REPORT NUMBER: 84-Q40079 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1040 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Senior Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2,875	300
LAST 90 DAYS	35	35

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft took off on a visual flight rules (VFR) flight to carry supplies to a hunting camp. Shortly after take-off, deteriorating weather forced the pilot to deviate from his normal route. The pilot, who was unfamiliar with the terrain, initiated a climb over the higher terrain and entered clouds. While in clouds, the aircraft struck trees which were 100 feet below the summit of a mountain. Both wings and the engine area sustained damage.

The pilot normally flew a route that was parallel to a valley and at an altitude of 2,500 feet above sea level. However, as his normal route was obscured by clouds, he decided to fly into the valley to continue the flight. While in the valley, the pilot missed a right turn into another valley, which would have allowed him to remain parallel to his normal route. The terrain became higher, and as the pilot continued to climb, he entered the cloud base. Once committed, the pilot attempted to regain visual contact with the ground instead of climbing to a safer altitude where he could have contacted air traffic control for assistance. The aircraft was within the boundaries of the Quebec Terminal Control Area, and they could have provided vectors if requested.

The pilot did not verify the current meteorological conditions prior to his flight, although they were available to him at that time from Quebec City. Instead, he based his decision to go on a forecast which was 12 hours old and on the weather which he observed on the lake at his take-off time.

Although not legally qualified for instrument flight rules (IFR) flight, the pilot had IFR experience, and his aircraft was equipped to minimum IFR standards.

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FINDINGS:

Cause Related:

1. The pilot did not obtain the latest meteorological information.
2. The pilot continued flight into deteriorating weather.
3. The aircraft collided with trees on a mountain that was obscured by cloud.

Other:

1. At the time of the accident, the aircraft was within the Quebec Terminal Control Area; the pilot could have requested assistance from the Terminal controller.

06/08/86

CESSNA 170B CF-ZRP
SWAN LAKE, BRITISH COLUMBIA
08 OCTOBER 1984

REPORT NUMBER: 84-P40059 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1200 PDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	230	50
LAST 90 DAYS	30	30

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

While approaching the lake where his cottage was located, the pilot observed that the water surface was glassy. Intending to make his turn at a safe altitude and let down along the shoreline, the pilot flew further down the lake than normal. While in a right turn the aircraft descended until it struck the water at a 30-degree bank angle. Following the impact, the aircraft sank.

As the pilot entered a right turn at what he thought was 200 feet above the water, he realized that the aircraft was actually at 20 to 30 feet, and he pulled back on the control column; however, the recovery was too late.

The loss of perception of height while in a turn is a problem when glassy water conditions prevail. A fixed point such as the shoreline would have provided ground references.

FINDINGS:

Cause Related:

1. The lack of a references over glassy water resulted in a loss of height perception.

Other:

- Nil -

02/04/86

CESSNA 180B CF-KYX
BRIDGE LAKE, BRITISH COLUMBIA
08 OCTOBER 1984

REPORT NUMBER: 84-P40061 (Accident)
LOCAL TIME: 1500 PST
OPERATION: Private Recreational
DAMAGE: Destroyed
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	505	Unknown
LAST 90 DAYS	18	18

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot took off in his float-equipped aircraft from the sheltered bay. The winds were estimated to be gusting to 40 kt and the surface of the lake was reported to have been very rough at the time of take-off. The heading selected for take-off was not into the wind, as the pilot was attempting to avoid the pounding on the floats by the rough water. He was also attempting to remain as long as possible within the sheltered bay area in order to gain airspeed and maintain positive control.

It was observed that immediately after lift-off, the aircraft was continuously buffeted by the turbulence. When the pilot flew out from behind the land mass, which had provided some shielding effect, the full force of the strong wind gusts and turbulence began to affect the flight. The nose and left wing of the aircraft rose abruptly and it banked steeply to the right. The aircraft stalled, the nose dropped and the aircraft struck the water.

The investigation revealed that had the aircraft been equipped with a shoulder harness, and had it been worn, the pilot's head would not have struck the instrument panel, and he might have survived.

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19/09/85

FINDINGS:

Cause Related:

1. The flight was attempted in unsuitable weather conditions.
2. When the pilot flew out from behind a protected land mass and into the full force of the gusty wind, the aircraft stalled.
3. Had the aircraft been equipped with a shoulder harness and had it been worn, the pilot might have survived the impact.

Other:

19/09/85

LUSCOMBE 8F C-FFZA
PICKLE LAKE, ONTARIO
23 NOVEMBER 1984

REPORT NUMBER: 84-C40090 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1205 CST
OPERATION: Private Company Business
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	4,900	2,500
LAST 90 DAYS	75	75

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	-	1

SUMMARY REPORT:

To assess the runway's suitability for a landing on skis, the pilot flew the aircraft at low level and parallel to the runway in a cross-controlled attitude; that is, with the aircraft banked to the left and opposite rudder applied to hold the aircraft on a straight course. The pilot was satisfied that the runway was suitable and was about to turn to join the circuit pattern when the engine started to run rough and lose power. Despite the pilot's attempt to regain power, the engine stopped completely. A forced landing was carried out straight ahead on the remaining 30 feet of runway. After touchdown, the aircraft left the runway and continued over an embankment into an area of stumps, rocks, and deep snow. The right ski broke off, and the machine nosed over.

The investigation revealed that the left fuel tank was only one-quarter full, and that the uncoordinated flight attitude caused fuel flow interruption at the fuel intake line. In his attempt to restart the engine, the pilot inadvertently turned the fuel tank selector to the off position rather than changing to a tank that contained more fuel, as he intended. The pilot flies three company aircraft of this type; each has a different type of fuel tank selector at a different location, and this may have contributed to the incorrect selection.

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21/11/85

FINDINGS:

Cause Related:

1. The engine lost power because of fuel starvation during a period of cross-controlled flight.

2. The pilot inadvertently turned the fuel off when he attempted to switch fuel tanks.

Other:

-- Nil --

21/11/85

CESSNA 140 C-FHDJ
CANWOOD, SASKATCHEWAN 15 mi N
09 DECEMBER 1984

REPORT NUMBER: 84-C40093 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1645 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	350	67
LAST 90 DAYS	Unknown	1

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	1	-	-

SUMMARY REPORT:

The ski-equipped aircraft took off from a frozen lake after an afternoon fishing trip. It was located the following day in a snow-covered farm field. The wreckage pattern was indicative of a high-speed impact in a steep-banked attitude.

Two aircraft were used for the visual flight rules (VFR) fishing trip, the Cessna 140 and a Cessna 170. Neither aircraft had a radio; the Cessna 140 was equipped with only very basic flight instruments.

The Cessna 170 took off from the lake 30 minutes before sunset, at which time the occupants of the Cessna 140 were just preparing to leave. During the 30-minute trip home, the Cessna 170 encountered low cloud ceilings and visibility reduced to one-quarter mile in fog. This aircraft turned back and carried out a precautionary landing in a field.

When the trip out to the lake was planned the weather was good. Neither pilot called for weather information but the forecast at that time indicated that the weather would be suitable for the VFR flight. An amended forecast which warned of low cloud and reduced visibilities was issued while the aircraft were on the lake. A lack of aircraft radios prevented either pilot from obtaining updated weather forecasts or advising each other of weather conditions encountered en-route.

... /2

02/04/86

En-route, the Cessna 140 overflew several fields which could have been used by a ski-equipped aircraft. Just prior to the accident, the aircraft was flying over a forested area. The reduced visibility in fog and approaching darkness, coupled with the loss of ground features as the aircraft passed from the treed area to the snow-covered fields, would have made it difficult to maintain visual reference with the ground. The pilot had not received instrument flight training and the Cessna 140 had only limited flight instruments. As a result, aircraft control was lost because of spatial disorientation.

FINDINGS:

Cause Related:

1. The visual flight rules (VFR) flight was continued into deteriorating weather.

2. Fog combined with snow-covered ground produced conditions which would have made it difficult to maintain visual reference with the ground.

3. Aircraft control was lost because of spatial disorientation.

Other:

1. A lack of aircraft radios prevented either pilot from obtaining updated weather forecasts or advising each other of weather conditions encountered en-route.

02/04/86

TAYLORCRAFT BC12D C-FIEH
ONANOLE, MANITOBA 4 mi SW
06 JANUARY 1985

REPORT NUMBER: 85-C50003 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1300 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	324	200
LAST 90 DAYS	29	29

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The aircraft was taking off from a field which was uneven due to snow ridges. The direction of take-off was across the ridges into a light wind. During the lift-off, the left ski dug into a ridge, and the aircraft turned over.

FINDINGS:

Cause Related:

1. The field was uneven due to snow ridges.

2. The left ski dug into a ridge.

Other:

-- Nil --

19/09/85

CESSNA 180 CF-MFU
FORT MCMURRAY, ALBERTA 23 mi NW
27 JANUARY 1985

REPORT NUMBER: 85-W50006 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1715 MST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	700	250
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

While on a visual flight rules (VFR) flight shortly before dusk, the pilot encountered heavy snow and low clouds. He continued into these conditions until visual contact with the ground was marginal. In an attempt to remain visual, he turned back but found no improvement, so he returned to the original heading. Descending to tree-top level, he sighted what appeared to be a flat field and attempted a precautionary landing. The main gear failed when the aircraft struck a bank on approach. The aircraft came to rest 200 feet from the initial impact point.

Investigation revealed that prior to departure, the pilot had received a weather briefing from the Fort McMurray Flight Service Station indicating that VFR conditions existed. The forecast further indicated that there could be a deterioration but that marginal VFR conditions would remain. The pilot, based on the information received, initiated the flight.

The area used for the precautionary landing was generally flat, featureless, and snow covered. These factors together with the low cloud, blowing snow, and approaching darkness created a whiteout condition which prevented the bank from being seen and avoided on final approach.

... /2

FINDINGS:

Cause Related:

1. The flight was initiated based on a forecast of VFR weather en-route.
2. The pilot continued VFR flight in adverse weather.
3. The landing gear failed when the aircraft struck a ditch during the precautionary landing.

Other:

- Nil -

21/11/85

BELLANCA SCOUT 7GCBC CF-GDK
STURGEON FALLS, ONTARIO
03 FEBRUARY 1985

REPORT NUMBER: 85-050004 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1200 EST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,500	13
LAST 90 DAYS	11	11

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The ski-equipped aircraft was taxiing to position for take-off on a snow-covered frozen river, when the right main landing gear leg collapsed. The right wing, stabilizer, propeller, and underside of the fuselage were substantially damaged.

The investigation revealed that the spring steel leg had fractured near the right fuselage attachment point, causing the aircraft to settle onto the right wing. The leg had progressively cracked from fatigue which had been initiated by corrosion. The jarring movement of the ski over the snow caused the weakened area to break.

The following laboratory report was completed: LP 47/85 - Right Main Gear Failure.

FINDINGS:

Cause Related:

1. The right main gear leg failed because of fatigue which was initiated by corrosion.

Other:

-Nil-

26/06/86

AERONCA 11AC C-FNSP
LAKE BERNARD, ONTARIO
09 MARCH 1985

REPORT NUMBER: 85-050016 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1615 EST
OPERATION: Private Training
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	387	303
LAST 90 DAYS	13	13

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The ski-equipped aircraft was climbing out after a touch-and-go landing on the frozen surface of a lake. At about 50 to 100 feet above ground level, the aircraft entered a left turn; the left roll increased until the aircraft assumed a very steep bank angle and entered a spiral dive. The aircraft struck the lake surface in a left-wing-low, nose-down attitude.

The pilot reported that he was looking down through the side window while the aircraft was turning. When he looked up toward the shoreline, he realized that the bank angle was too steep and the nose was going down. He attempted to roll out of the turn but too much altitude had been lost, and the aircraft struck the frozen lake surface.

FINDINGS:

Cause Related:

1. After take-off, a steep climbing turn was carried out at low altitude.
2. During the turn, control was lost due to a lack of attention, and the aircraft entered a spiral dive to the left.
3. The aircraft struck the frozen surface of the lake in a left-wing-low, nose-down attitude.

Other:

- Nil -

26/06/86

CESSNA 170B C-FYVJ
HASTINGS LAKE, SASKATCHEWAN
12 MARCH 1985

REPORT NUMBER: 85-C50013 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1213 CST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	307	31
LAST 90 DAYS	15	15

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot of the ski-equipped aircraft was approaching to land in a gusty cross-wind in a sheltered bay of a snow-covered lake. On final approach, the right wing rose; the left wing and ski dug into the snow, and the aircraft nosed over. Both the pilot and his passenger were uninjured and exited the aircraft without difficulty.

The cross-wind was from the right and was gusting from 12 to 16 knots. The initial approach path lay in the lee of a hill. On final approach as the aircraft emerged from the shelter of the hill, it encountered a gust of wind which caused the right wing to lift. Before the pilot could react, the left wing and ski dug into the snow.

FINDINGS:

Cause Related:

1. Allowance for the cross-wind was not made as the aircraft emerged from the shelter of a hill on final approach.

Other:

-- Nil --

02/04/86

SASKATCHEWAN GOVERNMENT
GRUMMAN CS2F2 C-GEQC
BUFFALO NARROWS, SASKATCHEWAN
3 AUGUST 1984

REPORT NUMBER: 84-C40063 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1450 CST
OPERATION: State
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	13,000	800
LAST 90 DAYS	90	90

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

Following a water bombing operation, the aircraft returned to Buffalo Narrows to reload. The pilot called North Battleford Flight Services and reported that the aircraft was on final with the gear down. On touchdown, the aircraft settled on its bomb bay doors and propellers and skidded to a halt. The gear selector was found in the down position by company maintenance personnel, but the landing gear was in the up and locked position, and the gear doors were closed.

Although the pilot contended that the gear was selected and confirmed down, no evidence of any system malfunction could be found. Numerous gear cycling tests were conducted following the accident, and all were successful.

FINDINGS:

Cause Related:

1. The aircraft was landed with the landing gear retracted.

2. No evidence of landing gear system malfunction could be found.

Other:

-- Nil --

10/12/85

NEWFOUNDLAND FORESTRY SERVICE
CANSO PBY-5ACF C-FCRP
DEER LAKE, NEWFOUNDLAND
28 AUGUST 1984

REPORT NUMBER: 84-A44035 (Incident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 2114 NDT
OPERATION: State
DAMAGE: Minor
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	Unknown	Unknown
LAST 90 DAYS	Unknown	Unknown

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft was engaged in forest fire fighting, when the hydraulic line to the water bombing door actuator broke. A water landing was made and the isolation valve to the water door was closed. The hydraulic system was replenished, and the pressure was normal. However, after take-off, hydraulic pressure was again lost, and the aircraft returned to base where the landing gear was lowered manually. The main gear was extended and locked, but the nose gear could not be fully extended, and it collapsed on landing. The starboard nose gear door and the tie down ahead of the doors sustained minor damage.

The investigation revealed that the nose gear could not fully extend because the nose gear lowering ratchet handle was defective and would not lock on the shaft assembly.

It was also determined that the failure of the hydraulic line was due to deterioration as a result of its long service life.

FINDINGS:

Cause Related:

1. Hydraulic pressure loss was due to the failure of a hydraulic line.

2. The hydraulic line failed because it had deteriorated from its long service life.

3. The nose gear could not be locked down because the nose gear lowering ratchet handle was defective.

Other:

- Nil -

26/06/86

DEPARTMENT OF TRANSPORT
BEECHCRAFT (BARON) C-FCAY
LESTER B. PEARSON INTERNATIONAL AIRPORT, TORONTO, ONTARIO
03 OCTOBER 1984

REPORT NUMBER: 84-044074 (Incident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1445 EDT
OPERATION: State
DAMAGE: Minor
PILOT LICENCE: Airline Transport

	CAPTAIN		FIRST OFFICER	
PILOT HOURS:	ALL TYPES	ON TYPE	ALL TYPES	ON TYPE
TOTAL	17,000	500	10,500	116
LAST 90 DAYS	100	18	90	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	1

SUMMARY REPORT:

The first officer, who was in the left seat, was flying the aircraft from Hamilton, Ontario to Toronto/Lester B. Pearson International Airport. The flight proceeded without incident until the aircraft touched down on runway 33 in a strong cross-wind from the left and in winds gusting from 20 to 30 knots. During the flare, the aircraft bounced off the main wheels, and the nosewheel contacted the runway before the aircraft settled back on the main wheels. The nosewheel tire failed, and the rim was damaged during the roll-out. The aircraft was taxied clear of the active runway and was shutdown. There was minor damage to the left propeller.

The evidence indicates that the gusty winds contributed to the hard landing and the bounce. The first officer was flying the aircraft in a left-wing-down attitude to correct for the drift. When the aircraft was hit by a gust, it landed hard and bounced, and the first officer did not react in time to prevent the nosewheel from striking the ground. When the nose of the aircraft pitched down, the left propeller struck the runway. At the time of the occurrence, the cross-wind component of the maximum gust was 15 knots, which is 7 knots lower than the 22-knot maximum demonstrated cross-wind component for this aircraft.

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26/06/86

FINDINGS:

Cause Related:

1. While landing in gusty cross-wind conditions from the left, the aircraft landed hard and bounced, and the co-pilot did not react in time to prevent the nosewheel from striking the ground.
2. When the nosewheel struck the runway, its tire burst and its rim was damaged.
3. Because of the left-wing-down attitude, the left propeller was damaged when the nosewheel hit the runway.

Other:

1. At the time of occurrence, the cross-wind component of the maximum gust was lower than the maximum demonstrated cross-wind component for this aircraft.

26/06/86

DEPARTMENT OF TRANSPORT
BEECHCRAFT A90 C-FCGI
STEPHENVILLE AIRPORT, NEWFOUNDLAND
15 NOVEMBER 1984

REPORT NUMBER: 84-A44043 (Incident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1645 NST
OPERATION: State
DAMAGE: Minor
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	11,760	300
LAST 90 DAYS	63	27

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was taxiing the aircraft out after refuelling, when the right boost pump failure light came on. He returned to the ramp to have the aircraft checked.

An examination by maintenance personnel revealed that the starboard nacelle fuel cell was contaminated by gravel. Gravel was also found in the boost pump. An inspection of the refuelling area and refuelling methods revealed a six-foot-wide area of gravel between the tarmac and the refuelling compound. When the fuel hose was rewound, the fuel nozzle, because of its design, scooped up gravel when it was dragged through the area. After the right nacelle tank was refuelled, the pilot replaced the tank cap, at which time he noticed gravel deposits and mud stains around the area of the filler cap.

Samples of gravel from the boost pump, the fuel tank, the open gravel area, and the inside of the fuelling cabinet were forwarded to the Nova Scotia Research Foundation Corporation for comparison. The Foundation concluded that the most likely source of gravel found in the fuel tank was the gravel area outside the refuelling cabinet. The area has since been paved.

FINDINGS:

Cause Related:

1. Failure of the fuel boost pump was caused by a gravel-contaminated fuel tank.

2. The gravel entered the fuel tank by means of the fuel nozzle.

3. The fuel nozzle became contaminated when it was dragged through a gravel area between the tarmac and the refuelling compound.

4. Adequate steps were not taken to protect the refuelling equipment from being contaminated.

Other:

1. Since the occurrence, the gravel area has been paved.

26/06/86

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
BEECH A-100 C-FGNL
ST. JOHN'S AIRPORT, NEWFOUNDLAND
2 DECEMBER 1984

REPORT NUMBER: 84-A44047 (Incident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 0040 NST
OPERATION: State
DAMAGE: None
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	6,700	2,500
LAST 90 DAYS	60	60

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	-

SUMMARY REPORT:

After departing from St. John's Airport and climbing through 5,000 feet, the captain, who was sitting in the right seat, noticed a brilliant white flickering light from the front area of the right engine (PT6A-28). This light was accompanied by a burning smell. Suspecting an engine fire, the pilot decided to shut down the engine. The right condition lever and the right propeller control were pulled; however, the right propeller did not feather. Consequently, the airspeed decayed, and altitude could not be maintained. The clean-up portion of the Engine Failure or Fire in Flight check-list, which contained the instruction, Propeller Synchrophaser - OFF, was not completed. When the synchrophaser was turned off as part of the landing checks, the propeller feathered. The aircraft was landed at St. John's Airport without further incident.

An inspection of the engine cowling revealed that the observed white flickering light was electrical arcing caused by a short circuit in the air intake lip boot. It was also found that the circuit-breaker for the de-icing system had not provided the necessary protection.

The pilot did not complete the clean-up portion of the check-list; he did not think there were critical action items on it, and he was more concerned with flying the aircraft to a safe landing. He did not know, nor did the pilot's check-list or flight manual indicate, that, with the synchrophaser on, the right propeller may not feather when selected. This information was available in the aircraft maintenance manuals and bulletins.

Following this incident, test flights were conducted on three different King Air aircraft. Attempts were made to feather the right propeller with the synchrophaser on. The propeller did not feather on the first two aircraft tested, but feathered normally on the third. It was discovered that the propeller synchrophasers of the first two aircraft and the incident aircraft were not rigged properly.

.../2

Beechcraft was aware of the feathering problem and had issued three communiques during April and May 1982. The communiques, which were not mandatory, set out a procedure to ensure proper synchrophaser adjustment on King Air 90, 100, and 200 aircraft. The information in the communiques was to be included in future revisions of the maintenance manuals. The King Air 100 manual was not revised until 15 March 1984. In December 1984, these directives had still not been followed by some operators and aircraft were flying in an out-of-rig condition. Flight tests have revealed that even in aircraft with properly rigged synchrophasers adjusted to specification on the ground, a propeller may not feather in flight if the synchrophaser is left on.

FINDINGS:

Cause Related:

1. A short circuit in the right engine tip boot de-icer system caused a white flickering light and a burning smell.

2. Suspecting an engine fire, the pilot shut down the right engine.

3. The clean-up portion of the "Engine Failure or Fire in Flight" check-list, which contained the requirement to switch off the synchrophaser, was not completed.

4. Because the right propeller synchrophaser was out of rig, the propeller did not feather, and, as a consequence, altitude could not be maintained.

Other:

1. Some aircraft synchrophasers had not been adjusted in accordance with procedures contained in the aircraft maintenance manual.

2. A synchrophaser adjusted to specification on the ground could still prevent a propeller from feathering in flight.

SAFETY ACTION:

Action Taken:

1. A letter recommending changes to the emergency check-list, and the inclusion of a more detailed explanation of the potential synchrophaser problem in the supplemental Operational Data section of the Flight Manual, was sent by Transport Canada to the Federal Aviation Administration of the U.S.A.

2. Circumstances of this incident have been passed to Transport Canada for consideration and possible distribution to Canadian owners and operators of the Beech King Air.

06/08/86

SECTION II

ROTARY WING AIRCRAFT

LAKELAND HELICOPTERS
HUGHES 269 (Helicopter) C-GBRQ
YELLOWKNIFE, NORTHWEST TERRITORIES 225 mi NE
06 JULY 1984

REPORT NUMBER: 84-C40044 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1200 MDT
OPERATION: Charter
DAMAGE: Substantial
PILOT LICENCE: Commercial Rotorcraft

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	800	300
LAST 90 DAYS	150	140

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	2

SUMMARY REPORT:

While on an approach to land at a speed of 15 to 20 mph, the helicopter began to yaw violently left and right. At a height of about 15 feet above the ground, the yawing became less violent as the pilot attempted to bring the machine under control. The main rotor rpm decayed, and the helicopter settled on to a rocky surface with a forward speed of two to three mph. The skids snagged in the rocks, and the helicopter tipped forward. The main rotor struck the rocks and then tipped backwards severing the tail boom. The pilot was able to shut down the engine, and the aircraft was evacuated.

The investigation did not reveal a mechanical problem that would explain the erratic yaw. It is possible that the landing was made with a tail wind and the attempt to stop the forward velocity led to the decay in rotor rpm. During the landing with forward speed, the helicopter's skids struck rocks in the touchdown area.

FINDINGS:

Cause Related:

1. For undetermined reasons, the helicopter was difficult to control while on final approach.

2. The landing was made with forward velocity on a rocky surface.

Other:

- Nil - 02/04/86

AERO TRADES
BELL 206B, C-GXCJ
CN RAILYARDS, WINNIPEG, MANITOBA
7 JULY 1984

REPORT NUMBER: 84-C40045 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 0719 CDT
OPERATION: Specialty Aerial Application and Distribution
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2600	1950
LAST 90 DAYS	140	140

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The helicopter was operating in an aerial application role, in support of a mosquito control program. On the fourth spray run of the flight, the pilot observed a three-wire high-tension power line in the helicopter's flight path. An attempt was made to avoid the wires but was not successful and the helicopter flew through the wires. The helicopter was landed immediately.

There were numerous obstacles such as towers and power lines in the railway yards that were being sprayed. By the time the lines were observed, it was too late to avoid flying into them. When the helicopter struck the wires, they penetrated the tank assembly, tore off a load-slinging mirror, and then snapped. The wire strike did not interfere with controlled flight so a normal landing was possible.

FINDINGS:

Cause Related:

1. The wires were not observed in time to avoid them.

Other:

- Nil -

DATE: 19/09/85

AEROCULTURE INC.
HUGHES 269A (Helicopter) C-GTOY
SAGUENAY RIVER, CHICOUTIMI, QUEBEC
21 JULY 1984

REPORT NUMBER: 84-Q40045 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1715 EDT
OPERATION: Specialty Aerial Inspection, Reconnaissance and Advertising
DAMAGE: Substantial
PILOT LICENCE: Commercial Rotorcraft

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	460	310
LAST 90 DAYS	80	80

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

While towing a banner at low altitude over the Saguenay River, the helicopter hit a power line and crashed into the river. The pilot escaped from the wreckage and swam to shore.

The banner was intended for a wedding motorcade. The pilot's attention was diverted from obstacles ahead because he had to do 360-degree turns to adjust to the speed of the motorcade, and he had to check that the banner was properly deployed while turning. Although the pilot sighted the power line while rolling out of a turn, he did not have time to avoid it.

The pilot was intentionally flying low so that the inscriptions on the banner could be read easily. When he planned his flight, however, he did not check for obstacles along his path.

FINDINGS:

Cause Related:

1. The banner-towing aircraft was flown at too low an altitude.

2. The pilot had not checked for obstacles along his flight path.

3. The pilot failed to avoid a power line spanning the river because his attention was diverted by a wedding motorcade and the banner.

Other:

- Nil -

06/08/86

LAKELAND HELICOPTERS LTD.
HUGHES 369D, C-GSRS
SWIFT CURRENT, SASKATCHEWAN
22 JULY 1984

REPORT NUMBER: 84-C40054 (Accident)
LOCAL TIME: 1200 CST
OPERATION: Charter
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2120	500
LAST 90 DAYS	93	83

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

While in cruise, at an altitude of 200 to 300 feet and with an airspeed of 100 to 120 mph, the pilot heard a loud bang from the rear of the helicopter. The aircraft yawed to the right and pitched nose down. At 10 feet above the surface the pilot was able to head into wind. He rolled the throttle off, pulled collective pitch and carried out a forced landing onto an open field.

Investigation determined that the tail rotor gearbox, hub and blades broke off in flight at the flange mounting. It was found that the holes in the tail rotor gear box were elongated to almost double size. This is an indication that the nuts holding the gear box to the flange were not torqued to the proper values.

FINDINGS:

Cause Related:

1. The tail rotor gear box hub and blades broke off in flight at the flange mounting.

2. The attachment studs were not torqued to the proper value.

Other:

- Nil -

DATE: 09/05/85

HELI-MAX LTEE
HUGHES 269-C (Helicopter) C-GBUS
PRESS, QUÉBEC 2 mi S
31 JULY 1984

REPORT NUMBER: 84-Q40052 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1345 EDT
OPERATION: Specialty Aerial Photography and Survey
DAMAGE: Substantial
PILOT LICENCE: Commercial Rotorcraft

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	3,750	615
LAST 90 DAYS	42	30

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	2

SUMMARY REPORT:

The helicopter, which was operating at high gross weight, was on final approach to a suitable landing site when at approximately 75 feet above ground level, one of the passengers suggested that they land slightly further ahead. As the pilot manoeuvred the helicopter to the new site, he noticed a drop in the rotor speed. He lowered the collective and simultaneously attempted to apply full power to the engine. The engine did not fully respond, and the pilot was unable to slow his rate of descent. The helicopter hit the ground hard, lurched forward in a slight right nose-down attitude, and then rolled over on to its left side.

The engine (Lycoming H10-360-DIA) was removed and taken to an engine overhaul shop for bench testing. Prior to engine start, a static fuel leak was observed in the vicinity of the fuel servo. After start-up, the leak was quickly traced to a chafed number four cylinder fuel injector line. It was determined that the engine's right-hand braided grounding strap, which showed signs of wear, had rubbed against the fuel line causing the line to chafe. In this particular helicopter model, when operating at a high gross weight, maximum power is required from the engine during take-off and landing. Because of the fuel leak, the number four cylinder was deprived of part of its essential fuel charge and failed to provide its maximum power output. When the pilot demanded full power from the engine in an attempt to land further ahead, the engine did not produce the required power. The engine log book showed that this fuel servo was installed 179 hours prior to the accident. As the servo is located in a rather awkward location, sufficient clearance between the line and the grounding strap may have been omitted, causing the chafing.

The following laboratory report was completed: LP 262/84-ELT.

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06/08/86

FINDINGS:

Cause Related:

1. The number four cylinder fuel injector line chafed through because it was installed too close to the right-hand grounding strap.
2. The engine was unable to develop full power because of the leak in the fuel injector line.
3. A hard landing resulted because of the lack of full power during the approach for landing.

Other:

-- Nil --

06/08/86

HUISSON AVIATION LIMITED
BELL 206L-1, C-GBZD
MARATHON, ONTARIO   4 MI EAST
9 AUGUST 1984

REPORT NUMBER: 84-040053 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 2000 EDT
OPERATION: Charter
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1658	1600
LAST 90 DAYS	130	127

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

The helicopter, which was not equipped with a wire cutter, was returning to base when reduced visibility, fog and 200 ft ceilings were encountered. In order to maintain visual flight in rising terrain the pilot flew up a river valley. Suddenly, directly in front of the helicopter, a power line was observed stretching across the river. As the pilot pulled up to clear the power line, the tailboom struck the top wire. Tail rotor control was lost and the pilot autorotated straight ahead into the river. The aircraft settled into the water, and as it rolled onto its side, the main rotor blades severed the tailboom.

The poles supporting the power line were hidden by the trees on either side of the river. Although the helicopter's speed had been reduced, the power line was not seen in time to be avoided. In order to clear the power line the pilot flared and applied collective. This brought the tail down into contact with the top wire, bending the tail boom up and causing a loss of tail rotor control. Following the autorotation, the sloping river bed allowed the helicopter to roll onto its side.

FINDINGS:

Cause Related

1. Fog and low ceiling restricted the pilot's visibility.
2. The power line was not observed in time to avoid a wire strike.
3. The helicopter struck the top wire of the power line.
4. The helicopter was not equipped with a wire cutter.

Other

1. The helicopter rolled over on touchdown, due to the sloping river bed.

19/9/85

FINDINGS:

Cause Related

1. Fog and low ceiling restricted the pilot's visibility.

2. The power line was not observed in time to avoid a wire strike.

3. The helicopter struck the top wire of the power line.

4. The helicopter was not equipped with a wire cutter.

Other

1. The helicopter rolled over on touchdown, due to the sloping river bed.

TRANS CANADA HELICOPTERS
BELL 206 A C-GNEH
PINEHOUSE, SASKATCHEWAN
11 AUGUST 1984

REPORT NUMBER: 84-C44025 (Incident)
LOCAL TIME: 2130 CST
OPERATION: Charter
DAMAGE: Minor
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2500	1800
LAST 90 DAYS	147	147

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	3

SUMMARY REPORT:

The helicopter, while following a country road, struck a power line. The pilot continued the flight to destination.

A main power line ran parallel to the road and was seen by the pilot; however, he did not see a feeder line which was strung across the road. Because the flight was operating one hour after sunset in dusky light conditions, the feeder line was difficult to see. It was also reported that fatigue was a factor in reducing the pilot's attentiveness.

There was no operational requirement to fly the aircraft at such a low altitude.

FINDINGS:

Cause Related:

1. The aircraft was flown at an unnecessarily low altitude.

2. The power line was not observed in the dusky light conditions.

3. The pilot's attentiveness was impaired by fatigue.

Other:

- Nil -

19/09/85

TRANS MARITIME HELICOPTERS
BELL 206B C-GMJH
HALCOMB, NEW BRUNSWICK
29 AUGUST 1984

REPORT NUMBER: 84-A40010 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: Unknown
OPERATION: Specialty Aerial Control
DAMAGE: Destroyed
PILOT LICENCE: Commercial Rotorcraft

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	3,100	44
LAST 90 DAYS	Unknown	44

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	1	-	-
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot, using a Bell 206B helicopter, was conducting herbicide spraying operations of forest areas. The base was being relocated to a gravel pit near a logging road. As the helicopter pilot was unfamiliar with the new site, a fixed wing spotter aircraft guided the helicopter to this location. The helicopter landed in the gravel pit where the pilot was to await the ground crew and support vehicles which were to arrive about one hour later. A down time of 2036 was entered in the pilot's load control log.

Some time later, the pilot took off. While in forward flight and near the gravel pit, the helicopter struck some trees at a height of about 30 ft agl. The helicopter came to rest on its right side after rotating 180 degrees from the direction of flight.

There was no evidence of any preimpact structural or system failure. An aircraft clock, which was stopped by the impact forces of the crash, indicated 9:24. Evidence suggests that the flight was conducted during darkness, and the accident probably occurred at 2124 ADT.

When the ground crew arrived at about 2330, the helicopter was not at the site and a search of other possible landing sites and two nearby airfields was unsuccessful. The following morning another ground search proved unsuccessful.

Because the ground crew was unaware that, in fact, the helicopter had crashed, they delayed notifying Search and Rescue (SAR). SAR was alerted at 0910 on 30 August and the emergency locator transmitter signal from the helicopter was received at about 1130. The aircraft was visually sighted at 1325 hrs.

The reason for the flight could not be determined. The pilot did not have a night endorsement.

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19/10/85

FINDINGS:

Cause Related

1. A flight was made for undetermined reasons.
2. While in low level forward flight, the helicopter struck the trees.

Other

1. After the initial check of possible landing sites, there was a twelve hour delay in alerting Search and Rescue.

19/10/85

TRANS NORTH TURBO AIR LIMITED
BELL 206B C-FXFF
MAYO, YUKON TERRITORIES 30 mi NE
30 AUGUST 1984

REPORT NUMBER: 84-W40064 (Accident)
LOCAL TIME: 0745 YST
OPERATION: Charter
DAMAGE: Substantial
PILOT LICENCE: Commercial Rotorcraft

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	4,850	4,000
LAST 90 DAYS	206	206

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	2

SUMMARY REPORT:

The pilot was attempting to land the helicopter on a small landing pad located on a steep mountain side. Because he was unable to position the machine squarely on the pad, the pilot made a second attempt closer to the face of the mountain. During this attempt, the main rotor blades struck the cliff face. The pilot then backed the helicopter away from the mountain, but as loud noises were heard from the vicinity of the transmission, an immediate landing was made. The main rotor struck the cliff again, and the helicopter rolled on to its right side.

The winds at the time of the accident were reported to be gusting up to 20 kt causing turbulence and strong updrafts. The pilot had used this landing pad on previous occasions and was familiar with the conditions. He reported experiencing similar difficulties at another time. Given the prevailing wind conditions, the confined area available for landing was unsuitable.

FINDINGS:

Cause Related:

1. Given the prevailing conditions, the confined area available for landing was unsuitable.

Other:

-- Nil --

DATE: 19/09/85

ROTOR TECH HELICOPTERS
HUGHES 369D C-GQOI
PHILLIPS ARM, BRITISH COLUMBIA
26 SEPTEMBER 1984

REPORT NUMBER: 84-P40055 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1400 PDT
OPERATION: Charter
DAMAGE: Substantial
PILOT LICENCE: Commercial Rotorcraft

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	5,312	249
LAST 90 DAYS	162	154

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was conducting a heli-logging operation involving the salvage of cedar blocks on a logged-out mountain on the British Columbia coast. A cedar block was hooked up to a 50-foot lanyard, and the pilot was rocking the helicopter fore and aft to dislodge the block. During these manoeuvres, the pilot heard the engine-out horn activate. He then observed that the main rotor rpm was decaying rapidly, so he lowered the collective and jettisoned the load. Because of the presence of ground personnel, the pilot was unable to land either directly below or at a level spot 150 feet down the mountain. As the pilot attempted a landing at a third area, the fuselage started to rotate to the right uncontrollably. The main rotor blades contacted a stump, and the helicopter turned 180 degrees, tearing off the right skid and tail boom. The fuselage then rolled to the right and came to rest on its left side.

An examination did not reveal any mechanical discrepancies in the helicopter or engine (Allison 250-C20B). The fuel tanks were drained and found to contain 6.5 imperial gallons of usable fuel. No reason could be found to account for the rpm run-down.

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02/04/86

FINDINGS:

Cause Related:

1. The cause of the rpm run-down could not be determined.

Other:

-- Nil --

02/04/86

HUISSON AVIATION LTD
BELL 206B (Helicopter) C-FWFV
MEAGHERS GRANT, NOVA SCOTIA
11 OCTOBER 1984

REPORT NUMBER: 84-A40025 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1130 ADT
OPERATION: Specialty Aerial Construction
DAMAGE: Destroyed
PILOT LICENCE: Commercial Rotorcraft

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	5,500	Unknown
LAST 90 DAYS	50	50

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The helicopter was being used to sling building materials from a flatbed truck. Two workers on the ground were involved in the operation; one was on the flatbed in order to hook up the load, the other, a marshaller, was about 100 feet in front of the truck to signal to the pilot when the load sling was attached to the helicopter.

The pilot positioned the helicopter over the flatbed, and as the hook-up man was attaching the sling to the hook, the helicopter began to settle. The hook-up man jumped clear of the flatbed, and the pilot, feeling that the engine had lost power, attempted to move the helicopter forward and to the left in order to land. As the helicopter settled, the right skid caught in the left external mirror of the truck causing the helicopter to rotate 90 degrees and roll over. The pilot lost consciousness; he revived almost immediately and shut down the engine.

The engine was removed and run on a test stand at an engine overhaul and repair facility. The engine exceeded the manufacturer's minimum specifications at all test points. No reason could be determined for the reported engine power loss.

The marshaller, positioned ahead of the truck, was indicating when loads were attached and was not required to provide marshalling assistance to the pilot for load pickup. This situation increased the pilot's workload when manoeuvring over the flatbed.

.../2

FINDINGS:

Cause Related:

1. The pilot felt that the engine was losing power and attempted an emergency landing.

2. The helicopter's right skid caught on the truck's external mirror causing the aircraft to roll over.

3. The reported engine power loss could not be confirmed or explained by the investigation.

Other:

-Nil-

SAFETY ACTION:

Action Taken to Date:

Transport Canada has made available, through the Regional Aviation Safety Officer (RASO), an audio-visual educational program, "Slinging With Safety" (TP 3042), which deals with the specific hazards of these operations.

26/06/86

AERO ARCTIC LTD.
BELL 206B C-GJIJ
LUPIN MINE SITE, NORTHWEST TERRITORIES 20 mi N
24 OCTOBER 1984

REPORT NUMBER: 84-C40087 (Accident)
INFORMATION SOURCE:
LOCAL TIME: 1548 CDT
OPERATION: Commercial Non-revenue
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	17,000	6,000
LAST 90 DAYS	30	25

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft was on a shallow descent from cruise altitude, 20 miles north of destination, when the fuel boost pump caution light flickered momentarily. The indicated fuel quantity was 15 U.S. gallons. About four minutes later, the caution light illuminated again and remained on. The fuel gauge now indicated only 10 gallons. Shortly thereafter, a complete power loss was experienced. The pilot carried out an autorotation planning to touch down by the shore of a small lake. To reach the intended area, the pilot extended the glide. With rotor rpm and forward speed decreasing rapidly, the helicopter landed hard and the tail boom was severed.

After the forced landing, the pilot noticed that the fuel gauges indicated empty. He confirmed that the fuel supply was exhausted when he was unable to drain any fuel from the drain plugs on the bottom of the fuel pumps. The helicopter had been fuelled from barrels. Although the pilot wanted 65 gallons of fuel on board, the pump used to extract fuel from the barrel reportedly failed, and he took off with 40 gallons registering on the gauges. If the fuel gauges were accurate, this quantity would have allowed sufficient fuel to complete the flight plus a 30-minute reserve. There was some indication on flights the day before that the fuel gauge was inaccurate.

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19/09/85

This model of helicopter has no independent low fuel quantity warning system, nor is there a means to dip the fuel tanks to verify the actual fuel quantity on board.

FINDINGS:

Cause Related:

1. The fuel quantity gauge was inaccurate.
2. Sufficient fuel to allow for the flight was not added to the aircraft.
3. There is no independent indication to warn the pilot of a low fuel quantity.
4. There is no method to dip the fuel tanks to measure fuel quantity.
5. The engine lost power as a result of fuel exhaustion.
6. The helicopter experienced a hard landing when the autorotational glide was extended to reach the landing area.

Other:

- Nil -

19/09/85

ROTORTECH HELICOPTERS LTD.
HUGHES 500D (Helicopter) C-GRYL
DELTA AIRPARK, BRITISH COLUMBIA
11 NOVEMBER 1984

REPORT NUMBER: 84-P40062 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1325 PDT
OPERATION: Charter
DAMAGE: Substantial
PILOT LICENCE: Commercial Rotorcraft

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	5,000	1,500
LAST 90 DAYS	130	130

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

Following a short flight, the helicopter pilot lowered the collective during the approach for landing. As the helicopter descended towards the runway surface, the pilot attempted to raise the collective control, but it was jammed in position. The pilot checked the collective friction and found it to be in the off position. A hard, run-on landing resulted in the main rotor blades cutting off the tail boom.

Subsequent examination determined that the pilot's seat-belt had become unfastened in-flight and the seat-belt buckle had fallen down between the door-frame and the collective lever and had jammed the control.

Safe operating practice in addition to regulations requires that seat-belts be fastened.

FINDINGS:

Cause related:

1. The pilot's seat-belt became unfastened in-flight.

2. The pilot's seat-belt buckle fell between the door-frame and the collective lever, jamming the control.

Other:

-- Nil --

02/04/86

RANGER HELICOPTERS CANADA
ROBINSON R22 (Helicopter) C-GFKW
SWIFT CURRENT, SASKATCHEWAN 30 mi NE
21 JANUARY 1985

REPORT NUMBER: 85-C50006 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1400 CST
OPERATION: Specialty Aerial Survey
DAMAGE: Substantial
PILOT LICENCE: Commercial Rotorcraft

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	650	300
LAST 90 DAYS	200	200

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The flight was being conducted at a low level for a wildlife survey. About 40 minutes into the flight, the pilot heard a loud bang from the engine area, which was followed by a simultaneous loss of rotor rpm and engine overspeed. The pilot carried out an autorotation landing on sloping terrain; the aircraft landed hard and bounced. After the second touchdown, the aircraft slid backwards down the slope causing damage to the tail rotor.

The investigation revealed that the rivets, which attached the lower clutch actuator bearing block to the shroud housing had become loose and had sheared, allowing the bearing block to rotate 30 degrees and become misaligned. The misalignment permitted the Vee belt drive to become loose, a condition which resulted in engine overspeed and rotor decay. Following this occurrence, the manufacturer issued Service Bulletin Number 44 which recommended the inspection of the lower actuator bearing mounting brackets at 100-hour intervals.

FINDINGS:

Cause Related:

1. The rivets which secured the clutch actuator bearing block to the shroud housing failed.
2. The bearing block became misaligned and relieved the tension on the Vee belt drive.
3. The reduced tension on the Vee belt drive resulted in engine overspeed and rotor decay.
4. The helicopter was damaged during the autorotation landing on sloping terrain.

Other:

- Nil -

28/05/86

BELL 47J2 C-FAHR
STEWART LAKE, YUKON TERRITORY
05 JULY 1984

REPORT NUMBER: 84-W40042 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1430 PDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial Rotorcraft

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,245	1,200
LAST 90 DAYS	3	3

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The helicopter departed from Watson Lake Airport on a pleasure flight to Stewart Lake. Upon shutdown on a little-used helipad at Stewart Lake, the pilot noted that the pad was unsafe and decided to move to a more stable platform. The engine backfired when it was restarted, but it seemed to run normally, and the helicopter was then raised into a hover and backed out over the lake. At this point, the pilot noticed that the helicopter was settling toward the water. Power was applied and the throttle twisted several times, but the engine did not respond. As the helicopter settled into the water, the engine was shut down, and the pilot and passenger exited without difficulty.

An examination revealed that both clamps, which secure the wastegate to the exhaust system, were very loose and that the upper gasket which is normally fitted between the two mating surfaces, showed signs of misalignment. Most of the misaligned gasket was missing. The supercharger, which increases air density for carburation, is turned by the exhaust gases. Any leakage in the system would reduce supercharger speed and therefore reduce the available power.

The investigation determined that the aircraft had flown approximately 17 hours after the engine had been replaced during an overhaul. This installation was completed and independently checked in accordance with regulations. No other work had been completed on the engine between the re-installation and the accident.

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18/03/86

The flight manual for the Bell 47J2 states that the normal variation between supercharger and manifold pressure during an engine power check at full throttle is two inches of mercury. The pilot stated that on departure from Watson Lake he noted only a one-inch difference. This drop in supercharger pressure indicated a potential power loss. The engine backfire on start likely dislodged the gasket in the supercharger exhaust, causing additional power loss.

Although the pilot was experienced on Bell 47J's, he had only three hours on the turbocharged Bell 47J2. Because of his previous experience, he did not read the 47J2 manual, and was therefore not aware of the full power check requirements.

FINDINGS:

Cause related:

1. Air leakage from the supercharger system reduced engine power.

2. The air leakage was the result of loose clamps and a misaligned gasket.

3. The engine backfire on start likely dislodged the gasket in the supercharger exhaust, causing additional power loss.

4. Although anomalies in engine power were noted by the pilot, their significance was not realized because he was not familiar with this particular helicopter model.

Other:

-- Nil --

18/03/86

GOVERNMENT OF CANADA, FLIGHT SERVICES
BELL 212 C-FDOP
MOSHER'S ISLAND, NOVA SCOTIA
13 NOVEMBER 1984

REPORT NUMBER: 84-A44044 (Incident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1415 AST
OPERATION: State
DAMAGE: Minor
PILOT LICENCE: Helicopter

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	5,245	326
LAST 90 DAYS	112	45

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The helicopter was being positioned for a slinging operation when the left front door swung open. Not wishing to continue, the pilot made an unscheduled landing in a confined area. During the landing, the helicopter drifted to the left toward a small shed. The main rotor blade tips struck the roof of the shed causing minor damage to the blade tips.

The left front door may not have been properly latched before take-off. When the pilot chose to make the unscheduled landing, he did not ensure that there was adequate clearance between the main rotor blades and the shed. The unplanned left drift on landing resulted in a collision with the shed.

It was determined by testimony and testing that interference exists between the life-jacket type being worn and the headset such that, when a pilot turns his head to the side, the headset along with the boom mike is displaced. This condition could induce pilots to restrict their head movements to prevent interference and thus restrict their field of view.

FINDINGS:

Cause Related:

1. The left front door swung open in flight, and the pilot made an unscheduled landing. The door opened for undetermined reasons.
2. During the landing, clearance from obstructions was not maintained, and the main rotor blade tips struck the roof of a small shed.

Other:

1. Interference between the life-jacket and the headset could cause pilots to restrict their sideways head movements, thus restricting their field of view.

29/09/86

SECTION III

OTHER TYPES

COOT (Amateur-built) C-GOOT
EXETER, ONTARIO 1.5 mi NW
1 JULY 1984

REPORT NUMBER: 84-040030 (Accident)
LOCAL TIME: 1600 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	130	30
LAST 90 DAYS	3	3

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

After a 20-minute flight, the pilot entered the circuit and was turning right base when the ailerons developed a violent flutter. Engine power was reduced, and the nose was raised. As the speed decreased, the flutter stopped. When the pilot lowered the nose and added power, the flutter recurred, so the pilot reduced the power again. Unable to reach the runway at the reduced power setting, the pilot carried out a forced landing in a field. During the landing roll, the aircraft struck a ditch and the landing gear collapsed.

The pilot had experienced a similar but not as violent aileron flutter on the day before under almost the same flight conditions. When the pilot checked the aircraft, he found that an aileron balance weight had come off. The weight was welded back on to the aileron before the accident flight. This weight did not come off on the accident flight, and therefore, it appears that on the previous flight, the weight came off as a result of the aileron flutter rather than the loss of the weight causing the flutter problem.

After he built the aircraft, the pilot made some modifications to the design specifications of the aircraft. Lag tabs had been added to the ailerons to lighten the control loads. The gap seal strips between the leading edge of the ailerons and the trailing edge of both wings were modified by bending the trailing edge of the gap strip one-quarter of an inch. The trailing edge of the gap strip was bent upward so that it would not rub on the aileron fabric. The evidence indicates that these modifications induced some turbulent airflow over the aileron in certain flight regimes, a condition which led to the aileron flutter.

.../2

22/04/86

FINDINGS:

Cause Related:

1. The pilot/builder made modifications to the aircraft's aileron controls.
2. The modifications led to aileron flutter which could only be controlled by a power reduction.
3. During the forced landing in a field, the landing gear collapsed when it struck a ditch.

Other:

- Nil -

22/04/86

TIERRA II (Ultralight) C-IETY
ELLIOT LAKE, ONTARIO 8 mi N
01 JULY 1984

REPORT NUMBER: 84-045010 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1858 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Ultralight Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	47	36
LAST 90 DAYS	40	36

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	1	-

SUMMARY REPORT:

During a demonstration flight with a passenger on board, the ultralight suddenly lost power and was force-landed on a small lake. After touchdown, the aircraft collided with a steep embankment.

During the examination of the wreckage, it was discovered that the propeller drive belt had failed, which, in turn, caused the propeller to stop in flight. The investigation revealed that the drive belt had failed due to a possible misalignment of the propeller drive shaft/clutch assembly. As well, the belt slipped aft and was stripped. There was no record of any maintenance completed on the drive shaft/clutch assembly.

FINDINGS:

Cause Related:

1. The propeller drive belt failed because of a possible misalignment of the propeller drive shaft/clutch assembly.

2. The pilot carried out a forced landing on a small lake.

3. The aircraft collided with an embankment.

Other:

-- Nil --

03/10/85

SKYSEEKER MK III (Ultralight) C-IBPN
WINNIPEG, MANITOBA 1 mi S
2 JULY 1984

REPORT NUMBER: 84-C45003 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1220 CDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial Ultralight

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	57	45
LAST 90 DAYS	53	45

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The qualified ultralight flight instructor who was at the controls and a potential trainee returned to the field to complete some touch-and-go landings. The second landing was made with a slight tail wind. In the subsequent take-off, and before the climb could be initiated, the aircraft overflew the end of the runway, contacted the tops of a barley crop, and nosed over.

The runway is about 900 feet long at an elevation of about 780 feet above sea level. At the time of the occurrence, the winds were light and the temperature was 30 degrees Celsius. Climb performance on the previous touch-and-go was described as poor. The aircraft's performance was reduced because of the tail wind and high temperature. The aircraft was unable to climb sufficiently to clear the barley field.

FINDINGS:

Cause Related:

1. The high temperature and tail wind degraded the aircraft's performance.

2. There was insufficient runway remaining to allow for a successful climb-out.

Other:

- Nil -

18/03/86

LAZAIR (Ultralight) C-IDQX
MANOTICK, ONTARIO 2 mi E
02 JULY 1984

REPORT NUMBER: 84-045008 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1000 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	90	30
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	-	-

SUMMARY REPORT:

After take-off, at a height of about 20 feet, the left engine (Rotax) lost power. Unable to clear high trees, the pilot turned the aircraft to the left and started a steep descent. The aircraft struck the ground in a left-wing-low, nose-down attitude.

An examination of the engine and the fuel system revealed that the fuel line to the carburettor fitting was not safety-wired in accordance with the assembly manual and that it appeared loose. When the engine was turned off, the fuel in the line would bleed back to the tank. Although the engine would start without difficulty and run for a few seconds, it would then lose power and run rough as if on a lean mixture. The investigation also revealed that the engine could be made to falter and lose power by wiggling the fuel line on the fitting. It was determined that the power loss was caused by the unsecured fuel line which reduced the fuel flow to the carburettor.

Notwithstanding the power loss, had the pilot selected a take-off path 100 feet further to the left, he would have had only low shrubs and a fence to avoid.

FINDINGS:

Cause Related:

1. An unsecured fuel line connection reduced fuel flow to the carburettor causing the left engine to lose power.

2. The fuel line at the carburettor fitting was not safety-wired as specified in the assembly manual.

3. The take-off path selected had high obstructions; a more suitable take-off path was available in the immediate area.

Other:

- Nil -

06/08/86

LAZAIR (Ultralight) C-1BXY
PETROLIA, ONTARIO
02 JULY 1984

REPORT NUMBER: 84-045011 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 0820 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	110	5
LAST 90 DAYS	-	-

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was operating from a 40-by-700-foot grass runway located near several houses. In an effort to reduce engine noise, a take-off was attempted using about 70 percent of the available power. This reduced power setting could not produce enough thrust to accelerate the ultralight to flying speed in the available runway distance. The take-off was aborted; the ultralight overran the remaining runway and came to rest in a drainage ditch.

FINDINGS:

Cause Related:

1. The runway length was insufficient for a reduced power take-off roll.

2. After the take-off was aborted, there was not enough runway available to stop the ultralight.

Other:

-- Nil --

19/10/85

AERO TECH AVIATION LTD.
WIZARD T38B (Ultralight) C-IBRO
HARDWOOD LANDS, NOVA SCOTIA
11 JULY 1984

REPORT NUMBER: 84-A45002 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 0720 ADT
OPERATION: Private Training
DAMAGE: Substantial
PILOT LICENCE: Student

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	8	8
LAST 90 DAYS	4	4

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

Prior to take-off from a dew-covered grass airstrip, the pilot set the brakes to keep the ultralight aircraft stationary while he applied full power. When the brake was released to commence the take-off roll, the ultralight started a slow turn to the right. Despite left rudder input, the aircraft continued to turn. The pilot then closed the throttle, and as he applied the brake, the ultralight skidded across the wet grass and struck a ditch.

The use of the left rudder to maintain directional control was ineffective due to the aircraft's slow airspeed. As the brake is installed in the nose wheel, braking action cannot be used to provide steering while on the ground. When the brake was applied on the wet grass, there was not enough traction to prevent the aircraft from skidding into the ditch.

The student pilot, who was on his first solo, was inexperienced and had not anticipated a turn on take-off. In addition, he had not considered what effect the wet grass would have on his ability to slow down.

19/09/85

LAZAIR, ULTRALIGHT C-ICSB
ROSEVILLE, ONTARIO
15 JULY 1984

REPORT NUMBER: 84-045015 (Ultralight)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 0700 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	110	60
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The twin engine Ultralight was in normal cruise at 400 ft. AGL when the right engine stopped. Low altitude did not permit a restart attempt, and as this aircraft can not sustain prolonged flight on one engine a forced landing was made onto a cornfield. Following a hard landing the aircraft was substantially damaged.

The engine ran normally in several post accident run-ups. The cause of the engine stoppage in flight remains undetermined.

FINDINGS:

Cause Related

1. The engine stopped for undetermined reasons.

Other

- Nil -

19/9/85

BEDE-4 (Amateur-built) C-FOBD
ST. LEONARD D'ASTON, QUEBEC
15 JULY 1984

REPORT NUMBER: 84-Q40042 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1830 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	170	102
LAST 90 DAYS	26	26

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The amateur-built aircraft had initially climbed to 4,500 feet above sea level (asl). As the weather was deteriorating, the pilot descended gradually to 700 feet asl to remain clear of cloud. The pilot attempted to contact St. Hubert and Dorval Air Traffic Control for assistance, but the low altitude prevented successful communication. Surrounded by towering cumulonimbus clouds, the pilot was unable to turn back or find an alternate airport. He therefore completed a precautionary landing on a farmer's field. During the ground roll, the nose gear dug into the soft earth. It then broke off, and the aircraft nosed over.

Prior to departure, the pilot checked the weather by telephone with the Sherbrooke Flight Service Station. The pilot was informed that conditions suitable for a visual flight rules were forecasted along the route and at destination. He was also informed that the visibility was occasionally reduced by fog, rain showers and thunder-showers. En-route, the pilot carried out a precautionary landing when confronted with heavy thunder-shower activity.

FINDINGS:

Cause Related:

1. The pilot continued the flight into deteriorating weather conditions.

2. The nose gear dug in when the pilot carried out a precautionary landing on a soft field.

Other:

- Nil -

19/11/85

ONTARIO SKIES
RALLY 3 (Ultralight) C-IDMM
MELBOURNE, ONTARIO
18 JULY 1984

REPORT NUMBER: 84-045016 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 0835 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Student

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	48	8
LAST 90 DAYS	8	8

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The ultralight aircraft was in a climbing turn after take-off when the engine oversped and stopped. Following a forced landing on to a cornfield, the aircraft nosed over.

The investigation determined that a slipping clutch had caused the drum of the clutch assembly to wear down and disintegrate. Without a serviceable clutch, the propeller disengaged from the engine. The absence of the propeller's aerodynamic load allowed the engine to overspeed and stop.

FINDINGS:

Cause Related:

1. The drum disintegrated as a result of wear brought on by a slipping clutch.

2. The propeller disengaged from the engine and caused the engine to overspeed.

3. The engine stopped as a result of an engine overspeed.

4. As the surface of the field did not allow for a normal landing roll-out, the aircraft nosed over.

Other:

-- Nil --

19/10/85

TIERRA II (Ultralight) C-IDQT
CHAPAIS, QUEBEC
18 JULY 1984

REPORT NUMBER: 84-Q45002 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 2015 EDT
OPERATION: Private Training
DAMAGE: Substantial
PILOT LICENCE: Commercial Ultralight

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	6,535	82
LAST 90 DAYS	128	71

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	-

SUMMARY REPORT:

The instructor, with a student pilot on board, was conducting a dual-training flight. During the climb-out at about 150 feet above ground level, the two-stroke engine (Rotax 503) lost power. The pilot attempted an emergency landing into the only clearing available, but the aircraft struck high trees before coming to rest on the ground.

An engine inspection revealed that the magneto drive shaft locking key had sheared causing the engine to lose complete power. This engine had been operated for sixty hours prior to the occurrence.

FINDINGS:

Cause Related:

1. The engine lost complete power soon after take-off because the magneto drive shaft locking key had sheared.

2. An emergency landing had to be made in an unsuitable area.

Other:

- Nil -

06/08/86

PITTS S-1 (Amateur-built) C-GPUR
WALKERTON AERODROME, ONTARIO 2 mi W
21 JULY 1984

REPORT NUMBER: 84-040043 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1715 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	800	12
LAST 90 DAYS	15	0

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

After completing some maintenance on the fuel system to correct a rough running engine problem, the pilot carried out an engine ground run, including a full power check. Satisfied that the problem had been corrected, the pilot took off for a check-flight. Shortly after take-off and approaching 120 mph, the engine (Lycoming 0-290-D2) lost power. The pilot could not land straight ahead because the area was obstructed by power lines, so he attempted to return to the runway. While in a shallow turn, the airspeed decayed. The aircraft stalled, flick-rolled, and struck the ground in an inverted position. The pilot received minor injuries.

During the investigation, the carburettor was disassembled, and the brass float was found partially collapsed and distorted. This condition caused the float to rub and bind on the top gasket, thus preventing the needle valve from shutting off the fuel flow when the float chamber was full. The unchecked fuel flow caused the engine to flood. The fuel system had been recently modified for inverted flight; however, it could not be determined when or how the float had been damaged.

The pilot's injuries were minimized by the use of a shoulder harness.

... /2

18/12/85

FINDINGS:

Cause-related:

1. The engine carburettor float had been damaged at some time prior to the check-flight; it could not be determined how or when the float had been damaged.

2. The damaged float allowed an unrestricted fuel flow to the engine causing the engine to flood.

3. After the engine power loss, sufficient speed to sustain flight was not maintained during an attempt to return to the runway for a landing.

4. The pilot's injuries were minimized by the use of a shoulder harness.

Other:

- Nil -

18/12/85

HOMEBUILT, C-GHMR
CONSOLATION CREEK, BRITISH COLUMBIA
22 JULY 1984

REPORT NUMBER: 84-P40035 (Accident)
LOCAL TIME: 1830 PST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2 000	290
LAST 90 DAYS	9	9

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

Unforecast turbulence was encountered during a VFR flight from Teslin, Yukon to Atlin, British Columbia. Following a severe jolt to the aircraft, a loud cracking noise was heard and the right wing started to vibrate. The aircraft became difficult to control and would not maintain altitude; a forced landing was carried out in low brush where the left wing struck the ground, spinning the aircraft around.

The leading edge of the right wing had collapsed, forward of the spar. Examination revealed that each of the plywood ribs had broken in two places, through narrow sections between a lightening hole and cut-outs for leading edge stringers. These sections constituted the weakest areas of the rib construction. Weather analysis showed no systems or conditions in the accident vicinity that would account for the phenomenon which precipitated the material failure.

The use of a smaller lightening hole or installation of intermediate nose ribs would have strengthened the wing structure and, probably, prevented the failure.

FINDINGS:

Cause Related:

1. The underdesigned leading edge structure of the right wing failed due to overload when the aircraft encountered turbulence.

Other:

- Nil -

DATE: 09/05/85

ASSOCIATION DE VOL A VOILE CHAMPLAIN
SCHWEIZER SG 2-22E (Glider) C-FWTY
ROXTON FALLS, QUEBEC
22 JULY 1984

REPORT NUMBER: 84-Q40048 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1715 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Glider

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	53	53
LAST 90 DAYS	-	-

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

In order to offer a smooth ride to the passenger, the pilot flew an extended circuit at normal circuit heights. During the long final, the glider hit an electrical wire situated 36 feet above ground and 1,056 feet from the runway threshold and then fell to the ground.

Since the extended circuit was flown at normal circuit heights, insufficient altitude was available to reach the runway.

FINDINGS:

Caused Related:

1. The pilot maintained normal circuit heights during an extended circuit pattern.

2. The pilot undershot the runway.

3. The glider hit an electrical wire during the final approach.

Other:

-Nil-

19/11/85

FINDINGS:

Cause Related:

1. The pilot assumed a constant rate of descent and had not anticipated th[illegible]ss of altitude in the downdraft.

2. The aircraft was not high enough to compensate for the downdraft which brought the glider close to the hydro wire.

3. After striking the wire, the aircraft did not have enough height to complete the glide to the runway.

Other:

1. Altitude, that could have been retained to compensate for possible downdraft, could have been lost rapidly just prior to touchdown by using the appropriate techniques.

ZENAIR CRICKET MC-12 (Amateur-built) C-GAYW
TORONTO MAPLE AIRPORT, ONTARIO
23 JULY 1984

REPORT NUMBER: 84-040046 (Accident)
LOCAL TIME: 1410 EDT
OPERATION: Private Testing
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	9,000	125
LAST 90 DAYS	75	0

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

As the nose was rotated during the take-off, the aircraft swerved about 30 degrees to the left. The take-off was continued and lift-off was achieved, but the aircraft would not climb. The pilot landed the aircraft in small trees ahead when he realized he could not climb over them.

A 2,620-by-44-foot asphalt runway was used for the take-off. The wind was 15 knots with peak gusts to 23 knots giving a cross-wind component of about 30 degrees from the right.

The portion of the runway that the pilot used to start his take-off roll was shielded by some buildings and trees, and the full effect of the wind was not felt until the aircraft left that protection. The sudden increase in right cross-wind almost coincidental with the rotation of the nose caused the aircraft to veer to the left. As the aircraft left the runway, lift-off was achieved at too slow an airspeed, and the aircraft was not able to climb.

FINDINGS:

Cause Related:

1. Directional control of the aircraft was lost as the aircraft left the wind protected area of the runway during the take-off roll.

2. The pilot did not anticipate the increase in wind velocity.

3. At lift-off, the airspeed was too low for the aircraft to climb.

Other:

-- Nil -- DATE: 19/03/86

SKYSEEKER MK III (Ultralight) C-IBRH
WINNIPEG, MANITOBA
27 JULY 1984

REPORT NUMBER: 84-C45004 (Accident)
LOCAL TIME: 0740 CDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Ultralight

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	6	6
LAST 90 DAYS	4	4

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	-	-

SUMMARY REPORT:

The ultralight aircraft departed from a runway at a private airpark owned by the manufacturer. While in a right turn, at an altitude of 75 ft, the engine (Rotax) began to run rough and then stopped. The pilot levelled the wings and prepared to land straight ahead on a wheat field. When the pilot realized that a collision with a power pole was imminent, he turned left. The right wing struck a wire and swung the ultralight into the pole. The aircraft rotated 180 degrees and came to rest 30 ft from the pole.

The investigation determined that the fuel/oil mixture was correct and that there was ample fuel on board for the flight. The engine was reinstalled in another aircraft and has run normally since that time. Although the temperature and dewpoint at the time of the flight were conducive to the formation of carburettor ice, the exact cause of the engine power loss could not be determined.

FINDINGS:

Cause Related

1. The engine stopped for undetermined reasons.

2. The aircraft collided with a power line during a forced landing.

Other

-- Nil --

19/09/85

SCHEIBE L-SPATZ 55 (Glider) C-GALG
DEEP RIVER, ONTARIO 4 mi S
29 JULY 1984

REPORT NUMBER: 84-040048 (Accident)
LOCAL TIME: 1630 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Glider

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	63	35
LAST 90 DAYS	7	6

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

During a cross-country flight and about 30 minutes after being released from the tow, the glider, at 3,000 feet above ground level, flew out of an area of thermals and into an area of sink. Unable to find any thermal activity, the pilot chose an open field for a landing. On touchdown, the left wing struck some small shrubs that had not been visible during the circuit.

The flight was conducted over a heavily wooded area with limited landing sites. The pilot selected his landing site while he was 1,000 feet above ground. As a result, he did not have sufficient time to check the landing area and did not see the shrubs.

The pilot did not ensure either when he planned the flight or after the glider became airborne that he would remain within gliding distance of a suitable landing site.

FINDINGS:

Cause Related:

1. Due to a loss of thermal, the pilot carried out a forced landing.
2. A suitable landing site was not available in the area of the planned cross-country flight.

Other:

- Nil -

DATE: 19/03/86

SCHLEICHER KA 6E (Glider) C-GXXA
LONGVIEW, ALBERTA 9 mi S
31 JULY 1984

REPORT NUMBER: 84-W40050 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1630 MDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Glider

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	657	23
LAST 90 DAYS	22	5

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The glider was returning to its departure point after a four-hour cross-country flight. Forty miles short of his destination, the pilot decided he had to land because of diminishing lift and adverse wind conditions. A field was selected and a right-hand circuit to land to the southeast was commenced. The downwind leg was on the lee side of a hill and strong subsidence was encountered. The pilot, faced with a high rate of descent, shortened the downwind leg and turned on to a base leg. Before the aircraft could be turned into wind, it contacted the ground heavily in a level attitude but with lateral drift created by a 30-knot cross-wind component. The aircraft bounced and on the second contact with the ground, the fuselage broke away from the wing section.

The weather had been suitable for glider flying earlier in the day, but at the time of the accident there were few convective areas and the surface winds were increasing to 30 knots from the south-southeast. The area selected for landing was bounded by power lines to the north and west and a fence to the south and east. A low hill was located just south of the field.

... /2

28/05/86

The strong subsidence, created by the wind blowing across the hilly terrain and the obstacles surrounding the field, limited the pilot's selection of a landing area. A heavy touchdown combined with the lateral motion of the aircraft resulted in the wing separating from the fuselage. The pilot did not realize until too late that he could not reach home base and as a result bypassed an area where more landing options were available.

FINDINGS:

Cause Related:

1. Wind and weather conditions forced the pilot to land prior to reaching his planned destination.
2. The pilot delayed the decision to land, thereby limiting his choice of suitable landing areas.
3. The aircraft encountered subsidence while positioning to land.
4. The aircraft was landed with drift because of a strong cross-wind.
5. The obstructions surrounding the landing area limited the pilot's choice of landing direction.

28/05/86

BEDE BD-4 (Amateur-built) CF-CHG
OSHAWA AIRPORT, OSHAWA, ONTARIO
02 AUGUST 1984

REPORT NUMBER: 84-040049 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1525 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Airline Transport

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,750	360
LAST 90 DAYS	20	20

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was practising touch-and-go landings in his amateur-built aircraft and was on final touchdown, when the landing gear nose strut collapsed. The aircraft skidded to a stop on its nose and remained on the runway.

Investigation revealed that the strut had failed in a fatigue mode near a gusset weld at a point where the strut bends. The fatigue had originated in an area of localized heat damage that may have occurred when the strut was welded or bent.

The following laboratory report was completed: LP 259/85 - Nose Gear Strut Failure.

FINDINGS:

Cause Related:

1. The landing gear strut failed in a fatigue mode in the vicinity of a gusset weld where the strut bends.

2. The fatigue originated in an area of localized heat damage.

Other:

-Nil-

26/06/86

ADVANCE AVIATION COBRA (Ultralight) Not Registered
CLEAR LAKE, ONTARIO
4 AUGUST 1984

REPORT NUMBER: 84-045017 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1500 EDT
OPERATION: Private Recreational
DAMAGE: Minor
PILOT LICENCE: None

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	10	10
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

Prior to flight, the pilot of the float-equipped ultralight intended to carry out a series of high speed taxi runs on the lake. As the pilot applied full power, the aircraft tipped to the right, went up on its nose and over onto its back. The pilot was rescued by boaters nearby.

The pilot/owner of the aircraft reported that the fiberglass panel on the bottom of the right float had failed at the step. The partially peeled-off sheet of fiberglass created a heavy drag in the water and caused the aircraft to tip over.

As of 1 July 1984, Transport Canada has set certain training and licensing requirements for ultralight aircraft pilots. In addition, these aircraft must be registered. The pilot, who did not have any formal training or hold any licence, stated that he was unaware of these regulations.

FINDINGS:

Cause Related:

1. During a high-speed taxi run on the lake, part of the fiberglass in the float step area peeled off.
2. The partially peeled-off sheet of fiberglass caused heavy drag in the water which tipped the aircraft.

Other:

1. The pilot was unaware of the training, licensing, and registration requirements for ultralight aircraft.

26/06/86

SKYTREK SKYSEEKER MKIII (Ultralight) C-IAJL
GRAND FALLS, NEW BRUNSWICK
08 AUGUST 1984

REPORT NUMBER: 84-A45003 (Accident)
LOCAL TIME: 2030 ADT
OPERATION: Private Recreational
DAMAGE: Minor
PILOT LICENCE: Private Ultralight

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	25	25
LAST 90 DAYS	9	9

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was practising touch-and-go water landings. On this attempt, the ultralight landed heavily; the fibreglass floats split open and the aircraft sank.

The pilot had limited float-equipped ultralight experience. On the evening of the accident, he had been given about a one-half hour float check-out. He then completed about one hour of circuits before the accident happened.

As the winds calmed and the sun neared the horizon, the pilot was faced with a low ambient light and glassy water condition, and he was unable to visually determine the aircraft's height above the water. As a result, he did not reduce the aircraft's forward speed or descent velocity during the landing approach. The impact force at touchdown was sufficient to split the fibreglass floats at their seams.

FINDINGS:

Cause Related:

1. The pilot was inexperienced in float operations.

2. The low ambient light and glassy water condition led to a loss of depth perception, making it difficult for the pilot to judge the aircraft's height above the water.

3. The impact forces resulting from the heavy landing exceeded the strength of the floats.

Other:

- Nil -

DATE: 19/03/86

PERCEPTION WEST MICROLIGHTS LTD.
EIPPER QUICKSILVER MX (Ultralight) C-ICSN
BRENTWOOD BAY, BRITISH COLUMBIA
11 AUGUST 1984

REPORT NUMBER: 84-P45009 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1000 PST
OPERATION: Specialty Flying Training
DAMAGE: Substantial
PILOT LICENCE: None

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	9	-
LAST 90 DAYS	9	-

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was on her first solo in a float-equipped ultralight. While on the base leg of a left-hand circuit, at about 50 feet above the water, the aircraft struck wires leading to an island. The ultralight swung to the right, struck a rock face, and fell to the beach in an upright position.

To assist in setting up for the landing, the pilot had extended the downwind portion of the circuit. She had not flown over the unmarked wires during her training, and neither the pilot nor her instructor was aware of the presence of the wires. The aircraft was flown at too low an altitude during the downwind leg. Because the inexperienced pilot was concentrating her efforts on flying the aircraft, she did not notice the wires ahead. Had the wires been marked, it is possible that they would have been seen and avoided.

FINDINGS:

Cause Related:

1. The inexperienced pilot allowed the aircraft to descend to too low an altitude during the circuit.

2. The downwind leg was extended to a point near the wires.

3. Neither the instructor nor the student pilot was aware of the existence of the wires.

Other:

- Nil -

28/05/86

QUICKIE II (Amateur-built) C-GRWV
PENTICTON AIRPORT, BRITISH COLUMBIA
19 AUGUST 1984

REPORT NUMBER: 84-P40046 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1038 PDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	61	.5
LAST 90 DAYS	.5	.5

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was performing high-speed taxi trials on his canard-type aircraft, when it unintentionally became airborne. After 30 minutes of flying, the pilot returned for the landing. The aircraft touched down on the left wheel and the left side canard failed.

The pilot reported that fuel had been dripping from the aircraft's header tank. He felt that the fuel had penetrated and weakened the fibreglass core of the left canard; however, this could not be confirmed.

FINDINGS:

Cause Related:

1. The left canard failed when the aircraft touched down.

2. The reason for the failure of the left canard could not be determined.

Other:

- Nil -

28/05/86

SCHLEICHER K6E (Glider) CF-VMX
HOPE AIRPORT, BRITISH COLUMBIA
19 AUGUST 1984

REPORT NUMBER: 84-P40048 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1600 PDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Glider

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	700	500
LAST 90 DAYS	45	45

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot of a high performance glider overflew a large mountain ridge while approaching the button of runway 25 for a landing. The glider entered a rapid, uncontrolled descent until it struck 70-foot trees one-quarter mile south of the runway.

The large ridge south of the airport has a reputation for turbulence and downdrafts during westerly wind conditions. When local pilots experience westerly winds, they make the base leg turn before reaching the ridge, then land on the western half of runway 25. They must then move their gliders to the eastern half of runway 25 for take-off. The pilot extended the downwind leg because of other traffic. Weather observations at the time of the occurrence indicate that the surface winds were 270 degrees at 15 knots.

Although aware of the hazards of overflying the ridge, the pilot was not prepared for the magnitude of the downdraft encountered.

FINDINGS:

Cause Related:

1. The glider circuit was not adjusted to compensate for possible downdrafts during westerly wind conditions.

2. The glider struck trees after encountering a downdraft while overflying a ridge on final approach.

Other:

-- Nil --

10/12/85

SKYSEEKER MK III (Ultralight) C-IAJV
GASPEREAU, NOVA SCOTIA
22 AUGUST 1984

REPORT NUMBER: 84-A45006 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1300 ADT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Ultralight Student

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	44	6
LAST 90 DAYS	6	6

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

During climb-out, the ultralight's engine lost all power. The student pilot attempted a forced landing on a grass field. On close final, the tail section of the aircraft caught on a wire fence, and directional control was lost. The aircraft came to rest in a ditch.

The evidence indicates that the engine had failed because the pre-set carburettor mixture was too lean. The mixture was later adjusted. The engine was tested and found serviceable.

FINDINGS:

Cause Related:

1. The pre-set carburettor mixture was too lean, thus resulting in engine failure.

2. During the forced landing, the tail of the aircraft caught on a wire fence.

Other:

-- Nil --

03/10/85

SNOOPYBIRD (Ultralight) C-ICPJ
OSBORNE CORNERS, ONTARIO
24 AUGUST 1984

REPORT NUMBER: 84-045019 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1330 EST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	3,000	30
LAST 90 DAYS	10	10

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	-	-

SUMMARY REPORT:

Prior to take-off, the pilot had the ultralight's fuel tank filled to capacity. He took off in a light cross-wind from the left and found that the aircraft climb performance was inadequate to clear a shallow hill ahead. He made a right turn downwind, but still could not gain airspeed or altitude. In an attempt to avoid a tree in his flight path, the pilot banked to the right, and the aircraft stalled, striking the ground in a nose-down attitude. Although impact forces were not severe, the pilot was seriously injured.

The aircraft was an owner-built variation of the Lazair ultralight. Its actual weight and maximum permissible take-off weight were not precisely known; because of the full fuel tank, the aircraft was slightly heavier than the pilot had previously experienced. There was no reported mechanical defect which would have contributed to the poor climb performance.

The rigid pilot's seat was mounted directly on the spring leg landing gear. The lack of any crushable structure between the seat and ground aggravated the pilot's injuries.

FINDINGS:

Cause Related:

1. For undetermined reasons, aircraft climb performance was inadequate to clear a shallow hill.

2. When the pilot was forced to bank the ultralight to avoid a tree, the aircraft stalled.

3. The lack of a crushable structure between the pilot's seat and the landing gear contributed to the pilot's injuries.

Other:

- Nil -

26/06/86

ULTRAFLIGHT LAZAIR (Ultralight) C-IBKS
NOBLETON, ONTARIO
26 AUGUST 1984

REPORT NUMBER: 84-045021
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1030 EST
OPERATION: Private Ferry
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	500	100
LAST 90 DAYS	45	45

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	-	-

SUMMARY REPORT:

The ultralight was being ferried between two private airfields. After conducting a run-up, the pilot took off. At about 50 feet above ground level with the engine at full power, the aircraft failed to gain altitude. It then entered an area of intense thermal activity, and the pilot decided to land. While in a left turn, the aircraft rolled over and descended almost vertically to the ground from a height of about 40 feet.

It is likely that shortly after take-off, the ultralight entered a downdraft, a condition which is always present in areas of vertical thermal activity. Because of the strength of the downdraft, the ultralight, which is powered by two, six horsepower engines, could not maintain a climb. As the aircraft was turned to the left, the right wing encountered an updraft. Because thermal updrafts can be localized and intense, the left wing may have remained in an area of relatively stable air. The unexpected roll caused by the updraft could not be corrected by the pilot, before the aircraft rolled over.

FINDINGS :

Cause Related:

1. The aircraft was flown into a strong downdraft which exceeded the climb performance of the aircraft.

2. During a turn toward a landing area, the right wing was flown into an updraft of sufficient strength to roll the ultralight over.

Other:

- Nil -

18/12/85

EMERAUDE CP 323AR (Amateur-built) C-FRDL
THUNDER BAY AIRPORT, ONTARIO
31 AUGUST 1984

REPORT NUMBER: 84-C44030 (Incident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1335 CDT
OPERATION: Private Recreational
DAMAGE: Minor
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	430	13
LAST 90 DAYS	51	13

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The aircraft, which had been recently purchased, was being ferried to its new home base. During one of the en-route stops for fuel, the pilot was cleared for a landing. The control tower operator advised the pilot that his landing gear did not appear to be down. The pilot answered by clicking his microphone. The aircraft then landed on the runway with the gear retracted.

The pilot later reported that the gear-up landing was intentional as there was a failure in the landing gear system. The cause of the landing gear system failure was not determined.

FINDINGS:

Cause Related:

1. The aircraft was landed with the landing gear retracted for undetermined reasons.

Other:

-- Nil --

10/12/85

WIZARD J3B (Ultralight) C-IBRI
RAWDON HILLS, NOVA SCOTIA
1 SEPTEMBER 1984

REPORT NUMBER: 84-A45005 (Accident)
LOCAL TIME: 1928 ADT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private Ultralight

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	32	26
LAST 90 DAYS	25	25

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

During a cross-country flight over hilly terrain, the ultralight encountered strong winds and turbulence. The pilot could not maintain altitude control and decided to land in a field. While on approach, the pilot noticed power lines in his flight path. Unable to fly over the power lines, the pilot intentionally stalled the aircraft into the trees.

When the ultralight took off, the winds were light and variable. There were no weather reporting facilities in the area over which the flight was conducted.

FINDINGS:

Cause Related:

1. The ultralight encountered strong winds, and the pilot could not maintain altitude control.

2. The ultralight was intentionally stalled into the trees to avoid the power lines.

Other:

- Nil -

DATE: 19/03/86

PITTS SPECIAL SIC (Amateur-Built) C-GDPV
WATERLOO-WELLINGTON AIRPORT, ONTARIO 5.5 mi NE
01 SEPTEMBER 1984

REPORT NUMBER: 84-040060 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1620 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Commercial

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	2,500	400
LAST 90 DAYS	3	3

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

After take-off, the pilot climbed to 500 feet and reversed course toward the runway. After completing two rolls, the aircraft was pulled up into an acrobatic tail-slide manoeuvre, and the aircraft climbed to about 1,500 feet before beginning the tail slide. During the recovery, the aircraft struck the ground in a level attitude. On impact, the landing gear collapsed, and the aircraft slid 390 feet.

When the aircraft began the tail slide, the nose did not fall through as quickly as the pilot had anticipated. Although the pilot was able to level the aircraft, the high sink rate could not be arrested before the aircraft struck the ground.

FINDINGS:

Cause Related:

1. The pilot attempted a vertical aerobatic tail-slide manoeuvre at an altitude that was too low to permit a full recovery.

Other:

-- Nil --

03/10/85

RAND KR1 (HOMEBUILT) C-GUCQ
ST. JEAN AIRPORT, QUEBEC
1 SEPT 1984

REPORT NUMBER: 84-Q40069 (Accident)
LOCAL TIME: 0605 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	120	-
LAST 90 DAYS	18	-

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot, who had not flown the home-built aircraft before, accelerated down the runway to determine ground handling characteristics. Take-off speed was reached unintentionally and the aircraft became airborne. A circuit was flown successfully; however, during the final approach and landing the pilot had difficulty controlling the aircraft. On touchdown the aircraft bounced and landed heavily, forcing the main landing gear up through the wings.

The aircraft bounced on touchdown because of overcontrolling.

FINDINGS:

Cause Related:

1. The pilot had no experience on this aircraft and became airborne unintentionally.

2. A suitable landing attitude was not maintained for touchdown.

3. The aircraft landed hard, forcing the main landing gear up through the wings.

Other:

- Nil -

19/09/85

QUICKIE QII (Amateur-built) C-GQZD
CRANBROOK AIRPORT, BRITISH COLUMBIA
14 SEPTEMBER 1984

REPORT NUMBER: 84-P40051 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1520 MDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,400	60
LAST 90 DAYS	40	40

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The amateur-built aircraft was on final approach at an altitude of 15 feet above ground level, when it suddenly dropped on to the runway. On impact, the right canard broke three feet in from the wheel, and the propeller was splintered.

When he inspected the aircraft, the pilot found many large grasshopper strikes on the leading edge of the canard. Safety literature circulated within the industry describes the adverse effect bugs or rain have on the lift properties of a laminar flow wing of this type. It was concluded that the grasshopper contamination disrupted the airflow over the wing which, in turn, caused the rapid loss of altitude.

FINDINGS:

Cause Related:

1. Contamination of the leading edge of the laminar flow wing contributed to a loss of lift.

2. The aircraft experienced a loss of lift resulting in a hard landing and structural failure.

Other:

- Nil -

21/11/85

FINDINGS:

Cause Related:

1. The aircraft experienced a loss of lift resulting in a hard landing and structural ....

2. the pilot lost control of the aircraft.

Other:

1. Contamination of the leading edge of the laminar flow aerofoil may have contributed to loss of lift.

Safety Deficiencies

The pilot has related his experience to the widely read publication; known as the "Experimental Aircraft Associations Sport Aviation Magazine". No further action should be regarded by the CASB.

LAZAIR III (Ultralight) C-IERJ
TROUT CREEK, ONTARIO
29 SEPTEMBER 1984

REPORT NUMBER: 84-045022 (Accident)
LOCAL TIME: 1700 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Student Ultralight

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	30	30
LAST 90 DAYS	20	20

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot intended to fly a low pass over an unfamiliar landing area to check the surface of the field. As the ultralight descended, it struck an electrical cable which was strung across the approach path and above another set of wires. The colour of the cable blended in with the gravel background, making the cable difficult to see. The rudder and elevators were damaged on impact, and the pilot was unable to maintain control of the ultralight. The aircraft crashed into a grove of willow trees about 300 feet beyond the initial point of contact with the wire.

The pilot was concentrating on the lower set of wires, and he failed to see the higher electrical cable strung across the approach path.

FINDINGS:

Cause Related:

1. The pilot made a low pass over an unfamiliar field.

2. An electrical cable was difficult to see because its colour blended in with the background.

3. The pilot did not see the cable as his attention was diverted to another set of wires.

Other:

-- Nil --

DATE: 19/03/86

LAZAIR (Ultralight) C-IAMY
ROSEVILLE, ONTARIO 2½ mi E
24 OCTOBER 1984

REPORT NUMBER: 84-045024 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1415 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private - Ultralight

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	110	110
LAST 90 DAYS	30	30

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

About one hour into the flight, the pilot noticed that the wind speed was increasing. He decided to return to his private grass runway for a landing and flew a circuit just above the tree-tops. While turning on to a left base, a gust of wind was encountered which caused the right wing tip to strike the tree-tops. Unable to recover, the pilot landed the ultralight in the trees.

The winds were estimated to be 15 mph with gusts.

FINDINGS:

Cause Related:

1. While at a low altitude, the aircraft encountered turbulence.

2. The aircraft was too low to recover.

Other:

-- Nil --

19/10/85

ZENITH CH300 (Amateur-built) C-GESL
BRAMPTON AIRPORT, ONTARIO
03 NOVEMBER 1984

REPORT NUMBER: 84-040075 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 1520 EST
OPERATION: Private Training
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	122	6
LAST 90 DAYS	12	6

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	2
PASSENGERS	-	-	-

SUMMARY REPORT:

The aircraft was on final approach when it suddenly started to lose altitude rapidly. Although power was increased to arrest the descent, the aircraft contacted the ground approximately 150 feet short of the runway threshold. The left wing tip touched down first; the aircraft then turned 180 degrees, skidded backwards and came to rest 30 feet from the threshold.

The pilot had had six hours flying experience on type and was not completely familiar with the flight characteristics of the aircraft.

It is likely that the pilot allowed the airspeed to decrease during the final approach phase which caused the aircraft to descend rapidly. Although the pilot attempted to arrest the descent with a power application, the aircraft was too low to the ground to permit recovery by the pilot. When the left wing struck the ground, directional control could not be maintained.

FINDINGS:

Cause Related:

1. The aircraft's low airspeed on approach was combined with a high rate of descent.
2. Insufficient height above the ground precluded a recovery from the high rate of descent.
3. The pilot was not sufficiently familiar with the flight characteristics of the aircraft.

Other:

-- Nil --

03/10/85

FINDINGS:

Cause Related

1. As the aircraft speed was reduced on final approach, a high sink rate developed.

2. The altitude was too low to allow sufficient time for a recovery.

3. As the pilot had minimum experience on type, he was not completely familiar with the stall characteristics of this aircraft.

Other:

-- Nil --

MONNETT SONERAI II (Amateur-built) C-GRKZ
LONDON AIRPORT, ONTARIO
09 MARCH 1985

REPORT NUMBER: 85-050015 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1118 EST
OPERATION: Private Testing
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	400	-
LAST 90 DAYS	10	-

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was conducting the initial test flight on his new amateur-built aircraft. During take-off, the tail wheel-equipped aircraft became airborne in a three-point attitude at low airspeed. It climbed to approximately 50 feet, stalled, hit the runway and veered to the right, coming to rest in a ditch.

The pilot, a co-owner/builder, was inexperienced on tail wheel-equipped aircraft but had received some conversion training on a Fleet Canuck and a Whittman Tailwind. In preparation for this first flight in a Sonerai, he had discussed handling technique with other pilots, who had advised him to hold the control stick fully back as long as possible during the take-off roll. The pilot's use of this technique produced a premature lift-off in a nose-high attitude. The surprised pilot overcontrolled in an attempt to restore a normal climbing attitude, and the aircraft stalled and crashed.

FINDINGS:

Cause Related:

1. The pilot was inexperienced on tail wheel-equipped aircraft.
2. It was the pilot's first flight on the aircraft type, and he used an inappropriate take-off technique.
3. The aircraft became airborne prematurely in a nose-high attitude.
4. The pilot overcontrolled, causing the aircraft to stall.

Other:

-Nil-

26/06/86

ZENITH CH 250 C-GORN
BRAMPTON AIRPORT, ONTARIO
17 MARCH 1985

REPORT NUMBER: 85-050018 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1250 EST
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	223	14
LAST 90 DAYS	13	13

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	1

SUMMARY REPORT:

The pilot, accompanied by a passenger, was flying circuits to familiarize the passenger with the aircraft. The approach to the runway was slightly high and the power was brought to idle to increase the rate of descent. As the pilot was rounding out for the landing, the aircraft encountered a gust of wind and the left wing dropped and struck the runway. The aircraft swerved left, ran off the runway, and struck a snowbank, causing the nose gear and right main gear to collapse.

The wind was blowing 30 degrees from the right of the runway heading at 13 knots gusting to 24. When the wings rolled to the left, the pilot applied power and full right aileron but was unable to level the aircraft before the left wing struck the runway. This type of aircraft decelerates very quickly during round-out and control becomes sluggish at low speed. This rapid deceleration can be prevented if some power is carried on final and slowly reduced during round-out. Using this procedure is particularly important when the wind is gusty and all the control available is required.

FINDINGS:

Cause Related:

1. Because of the approach without power, the aircraft decelerated rapidly during round-out and the controls became sluggish.

2. During round-out, the aircraft encountered a gust of wind which induced a roll to the left.

3. The pilot was unable to level the aircraft.

4. The left wing dropped and struck the runway.

5. When the aircraft ran off the runway, it struck a snowbank.

Other:

- Nil -

26/06/86

PITTS SPECIAL (Amateur-built) CF-XTT
MILL RIVER, PRINCE EDWARD ISLAND
16 JUNE 1985

REPORT NUMBER: 85-A50015 (Accident)
INFORMATION SOURCE: Correspondence Investigation
LOCAL TIME: 1455 ADT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	500	39
LAST 90 DAYS	25	25

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	-	1
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot of the amateur-built aircraft was on a short flight from Summerside, Prince Edward Island to Mill River. On arrival at Mill River, the pilot completed a low pass to check out the area and the wind and then decided to land on the grass airstrip. He went around again and performed an approach while compensating for a cross-wind from the left. As the aircraft levelled off for landing, it drifted to the left and touched down in long hay bordering the mowed landing area. The aircraft continued through the hay for approximately 300 feet and then overturned.

The landing area is a section of a hay field that is mowed for aircraft operations. The airstrip is bordered on the left by a row of 30-to-40-foot trees, which acted as an effective wind-break for the cross-wind.

The investigation determined that as the aircraft was levelling off, the pilot did not anticipate the sudden change in wind direction and speed and did not take immediate corrective action. As a result, the aircraft drifted to the left into the long hay where it landed. The aircraft rolled for a short distance before the long hay wound around the axle of the wheels, causing the aircraft to flip over.

.../2

06/08/86

FINDINGS:

Cause Related:

1. A line of trees to the left of the runway reduced the effect of the cross-wind acting on the aircraft during the approach.
2. The pilot had not anticipated the reduced cross-wind effect, and the aircraft was allowed to touch down to the side of the runway.
3. Long hay growing at the side of the runway wound around the axle of the wheels and the aircraft flipped over.

Other:

- Nil -

06/08/86

ULTRAFLIGHT LAZAIR SERIES II (Ultralight) C-IAOD
LAC DE MONTIGNY, QUEBEC
17 JULY 1985

REPORT NUMBER: 85-Q55006 (Accident)
INFORMATION SOURCE: Field Investigation
LOCAL TIME: 2015 EDT
OPERATION: Private Recreational
DAMAGE: Substantial
PILOT LICENCE: Private

PILOT HOURS:	ALL TYPES	ON TYPE
TOTAL	1,035	-
LAST 90 DAYS	10	-

INJURIES:	FATAL	SERIOUS	MINOR/NONE
CREW	-	1	-
PASSENGERS	-	-	-

SUMMARY REPORT:

The pilot was making his first flight in an ultralight aircraft. After a few short hops close to the ground, the pilot took off, briefly maintained level flight, then entered a steep climb. At approximately 50 feet above the ground, the aircraft stalled, entered a dive, and struck the ground.

The investigation established that the pilot had logged over a 1,000 hours on conventional light aircraft; however, he had never flown an ultralight, nor had he received any formal instruction on this aircraft type. He attempted his first take-off in the Lazair after brief verbal instruction and after less taxi training than recommended in the booklet entitled "Learning to Fly the Lazair". The manufacturer included this booklet with the aircraft construction kit. According to the booklet, this model of Lazair has a very slow roll control response but is very sensitive in pitch and thus prone to overcontrolling. After take-off, the pilot allowed the aircraft to pitch up excessively, and as a result, the aircraft stalled. Because of the low altitude, the pilot was not able to effect a recovery before the aircraft struck the ground.

FINDINGS:

Cause Related:

1. The pilot had received inadequate training in the ultralight before attempting his first flight.

2. This model of the Lazair is very sensitive in pitch and thus prone to overcontrolling.

3. After take-off, the aircraft was allowed to pitch up excessively and stall.

4. Full recovery could not be performed before the aircraft struck the ground.

Other:

- Nil -

06/08/86

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	500	O40066	035
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CONVAIR	CV580	O44073	003
COOT	AMPHIB	O40030	253

MANUFACTURER	TYPE	REPORT NUMBER	PAGE (con't)
DEHAVND CAN	DHC2	W40061	192
		A40020	015
		O50020	074
	DHC3	O50008	073
	DHC6	C40068	014
		Q40075	137
		H40004	018
DOUGLAS	DC1030	O54023	005
EIPPER	QKSILV	P45009	277
EMERAUDE		C44030	283
GRUMMAN	CS2F	C40063	219
	G164	C40048	049
GRUMMANAMER	AA5	O40062	132
	G164A	C40064	064
	G164S	A40018	055
		A50018	077
HUGHES	269A	C40044	228
		Q40045	230
		Q40052	232
	500	C40054	231
		P40055	240
		P40062	246
KRAMER	SNOOPY	O45019	281
LUSCOMBE	8	C40090	209
MAULE	M4R	O40047	181
	Q40051	Q40051	186
		P40047	117
		Q40079	204
	M5220C	W40055	113
NA ROCKWELL	112	P40050	129
	NA73	O40035	083
PIPER	CHEYEN	O40073	161
	J3	O40050	188
	J5	P54007	177
	PA18	O40032	180
		Q40072	198
		P40058	151
	PA22TC	W40073	154
		C40083	160
	PA24	P40907	157
	PA25	A40016	045
		Q40044	056
		A40019	060
	PA28	O40034	024
		C40046	082
		C40909	089
		O40045	100
		W40071	153
		O40074	040
		C40085	164
		W40074	166

MANUFACTURER	TYPE	REPORT NUMBER	PAGE (con't)
PIPER	PA28	W40079	169
		O40078	170
		C50001	172
		O50010	043
	PA30	O40051	111
		C40911	122
	PA32	C40910	099
		A40903	118
	PA38	A40021	034
PITTS	S1	O40043	264
		Q40066	126
		O40060	285
		A50015	295
POLISH ACFT	PZLM18	A50011	075
QUICKIE	Q2	P40046	278
		P40051	287
ROBINSON	R22	C50006	247
ROTEC	RALLY3	O45016	262
ROUTLEDGE	HM-1	P40035	266
SCHEIBE	LSPATZ	O40048	271
SCHLEICHER	KA6	W40050	272
		P40048	279
SCHWEIZER	SGU222	Q40048	267
SILVAIRE	LUSC8	P50007	178
SKYTREK	SKYSEE	C45003	256
		C45004	270
		A45003	276
		A45006	280
SONERAI	II	O50015	293
STINSON	108	C40061	107
		P40056	200
TAYLORCRAFT	B/B12	C40071	121
		Q40073	133
		A40022	138
		C50003	213
TERRATORN	TIERRA	O45010	255
		Q45002	263
TRI-ZENITH	CH-300	O40075	291
ULTRAFLIGHT	LAZAIR	O45008	257
		O45011	258
		O45015	260
		O45021	282
		O45022	289
		O45024	290
		Q55006	297
ULTRALITE	WIZARD	A45002	259
		A45005	284
ZENAIR	MC-12	O40046	269
ZENITH	CH-250	O50018	294

ANNEX 2

LIST OF REPORTS BY PROVINCE/TERRITORY OF OCCURRENCE

REPORTS BY PROVINCE/TERRITORY OF OCCURENCES

PROVINCE/TERRITORY	DATE	REPORT NUMBER	PAGE
Newfoundland & Labrador	84 07 09	A40017	047
	84 08 28	A44035	220
	84 09 01	A40020	015
	84 09 23	A40904	139
	84 09 27	A40023	199
	84 09 28	A40024	185
	84 11 15	A44043	223
	84 12 02	A44047	224
	84 07 01	W40040	079
Nova Scotia	84 07 04	A40016	045
	84 07 11	A45002	259
		A45006	280
	84 09 01	A45005	284
	84 10 11	A40025	242
	84 11 13	A44044	250
New Brunswick	84 07 30	A40019	060
	84 08 08	A45003	276
	84 08 16	A40903	118
	84 08 29	A40010	237
	84 09 06	A40021	034
	84 09 20	A40022	138
	85 05 29	A50011	075
	85 07 11	A50018	077
Quebec	84 07	Q40040	081
	84 07 15	Q40042	261
	84 07 18	Q45002	263
	84 07 20	Q40044	056
	84 07 21	Q40045	230
	84 07 22	Q40048	267
	84 07 24	Q40050	184
	84 07 27	Q40051	186
	84 07 31	Q40052	232
	84 08 02	Q40053	106
	84 08 05	Q40054	063
	84 08 10	Q40055	190
	84 08 31	Q40066	126
	84 09 01	Q40069	286
	84 09 09	Q40072	198
	84 09 09	Q40073	133
	84 09 18	Q40075	137
	84 10 03	Q40079	204
	84 10 14	Q40083	159
	84 10 28	Q40089	165
	85 01 05	Q50001	173
	85 02 03	Q50003	174
	85 07 17	Q55006	297

PROVINCE/TERRITORY	DATE	REPORT NUMBER	PAGE (CON'T)
Ontario	84 07 01	O40030	283
	84 07 01	O45001	255
	84 07 02	O40032	180
	84 07 02	O45008	257
	84 07 02	O45011	258
	84 07 04	O40034	024
	84 07 07	O40035	083
	84 07 08	C40047	046
	84 07 08	O40036	085
	84 07 08	O40038	086
	84 07 14	O40039	091
	84 07 15	O45015	260
	84 07 18	O40041	027
	84 07 18	O45016	262
	84 07 19	C40052	011
	84 07 19	C40053	012
	84 07 21	O40043	264
	84 07 21	O40044	029
	84 07 22	O40045	100
	84 07 23	O40046	269
	84 07 23	O40047	181
	84 07 29	O40048	271
	84 07 30	O40905	062
	84 08 02	O40049	274
	84 08 02	O40050	188
	84 08 03	C40061	107
	84 08 04	O45017	5
	84 08 05	O40051	111
	84 08 07	O40052	031
	84 08 09	O40053	234
	84 08 17	O40057	065
	84 08 20	O40058	032
	84 08 24	O45019	281
	84 08 26	O45021	282
	84 08 31	C44030	283
	84 09 01	O40060	285
	84 09 04	C40078	017
	84 09 09	O40061	130
	84 09 09	O40062	132
	84 09 24	O40065	145
	84 09 26	O40066	135
	84 09 27	O40067	038
	84 09 28	O40068	202
	84 09 29	O40070	147
	84 09 29	O45022	289
	84 09 30	O44073	003
	84 10 03	O44074	221
	84 10 06	O40069	150

PROVINCE/TERRITORY	DATE	REPORT NUMBER	PAGE (CON'T)
Ontario	84 10 11	O40072	157
	84 10 17	O40073	161
	84 10 17	O40074	040
	84 10 24	O45024	290
	84 11 03	O40075	291
	84 11 12	O40906	168
	84 11 23	C40090	209
	84 12 01	O40080	067
	84 12 02	O40078	170
	85 01 12	C50004	070
	85 01 19	O50001	042
	85 02 03	O50004	216
	85 02 16	O50006	071
	85 02 20	O50008	073
	85 03 03	O50010	043
	85 03 04	O54023	005
	85 03 08	O50013	175
	85 03 09	O50015	293
	85 03 09	O50016	217
	85 03 11	O50017	044
	85 03 17	O50018	294
	85 03 21	O50020	074
	85 05 20	O50032	179
Manitoba	84 07 02	C45003	256
	84 07 07	C40045	229
	84 07 23	C40056	059
	84 07 27	C45004	270
	84 08 07	C40064	064
	84 08 18	C40069	120
	84 08 19	C40071	121
	84 10 06	C44027	149
	84 10 17	C40083	160
	84 10 25	C40085	164
	85 01 06	C50003	213
Saskatchewan	84 07 07	C40046	082
	84 07 12	C40048	049
	84 07 14	C40909	089
	84 07 19	C40050	052
	84 07 19	C40051	054
	84 07 22	C40054	231
	84 07 22	C40055	057
	84 07 27	C40057	185
	84 07 28	C40058	101
	84 07 30	C40059	102
	84 08 02	C40060	104
	84 08 03	C40063	219
	84 08 04	C40065	108
	84 08 05	C40066	109

PROVINCE/TERRITORY	DATE	REPORT NUMBER	PAGE (CON'T)
Saskatchewan	84 08 11	C44025	236
	84 08 23	C40072	196
	84 08 27	C40911	122
	84 08 30	C40912	124
	84 09 04	C40077	127
	84 10 01	C40082	203
	84 12 09	C40093	211
	85 01 04	C50001	172
	85 01 21	C50006	247
	85 03 12	C50013	218
Alberta	84 07 31	W40050	272
	84 08 05	W40055	113
	84 08 06	W40056	114
	84 10 08	W40071	153
	84 10 09	W40073	154
	84 11 25	W40079	169
	84 12 09	W40080	069
	85 01 27	W50006	214
British Columbia	84 07 02	P40025	007
	84 07 07	P40026	036
	84 07 11	P40902	088
	84 07 15	P40030	093
	84 07 16	P40028	050
	84 07 18	W40047	095
	84 07 20	P40034	097
	84 07 22	P40035	266
	84 07 24	P40036	182
	84 08 10	P40043	116
	84 08 11	P45009	277
	84 08 13	P40047	117
	84 08 19	P40046	278
	84 08 19	P40048	279
	84 08 19	P40904	194
	84 09 08	P40050	129
	84 09 14	P40051	287
	84 09 15	P40052	135
	84 09 23	P40054	140
	84 09 26	P40055	240
	84 09 27	P40056	200
	84 10 06	P40058	151
	84 10 08	P40059	206
	84 10 08	P40061	207
	84 10 11	P40907	157
	84 11 09	W40074	166
	84 11 11	P40062	246
	84 12 05	P44015	171
	84 12 14	P44016	023
	85 04 25	P54007	177
	85 05 05	P50007	178

PROVINCE/TERRITORY	DATE	REPORT NUMBER	PAGE (CON'T)
NorthWest Territories	84 07 06	C40044	228
	84 07 21	C40910	099
	84 08 12	C40068	014
	84 10 09	H40004	018
	84 10 24	C40087	244
	84 07 20	A40018	055
	85 06 16	A50015	295
Yukon	84 07 05	W40042	248
	84 08 14	W40061	192
	84 08 30	W40064	239